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ROYAL BOTANIC GARDENS, KEW.

BULLETIN

OF

MISCELLANEOUS INFORMATION.

No. 6] [1925

XXVIII.—REVISION OF THE GENUS CASSIPOUREA.

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The genus *Cassipourea* was first described by Aublet [1] in 1775, *C. guianensis* being the type species. *Weihea* was described in 1825 by Sprengel [2] with *W. madagascariensis* as the type species. A third genus *Dactylopetalum* was founded by Bentham [3] in 1858, with *D. sessiliflorum*, also a Madagascar plant, as the type.

In 1856 Tulasne [4] reduced *Weihea* to *Cassipourea* and described *C. gummiflua*, which afterwards became *Dactylopetalum gummifluum* Baill. N. E. Brown [5] in 1894 reduced a certain number of species of *Dactylopetalum* to *Cassipourea* and remarked, "I cannot find any character of generic importance to separate the African *Dactylopetalum* from the American *Cassipourea*." O. Stapf [6] in 1905 followed his example.

In 1908 Engler [7] went so far as to say of *Dactylopetalum*, "Diese Gattung ist nur sehr wenig von *Weihea* verschieden und könnte auch nur als Sektion oder Untergattung hingestellt werden," a similar remark having previously been made by Baillon. [8] A re-examination of the whole of the species of these genera entirely confirms these views, and it has been found impossible to retain more than one genus.

Owing to the exact status of *nomina conservanda* being doubtful, it is uncertain whether under International Rules (ed. 2, 1912) the genus, as here delimited, should be called *Cassipourea* or *Weihea*. The latter is a *nomen conservandum*, but differences of opinion exist among experts as to whether a *nomen conservandum* continues to be conserved when the genus is united with another which had previously been regarded as generically distinct.

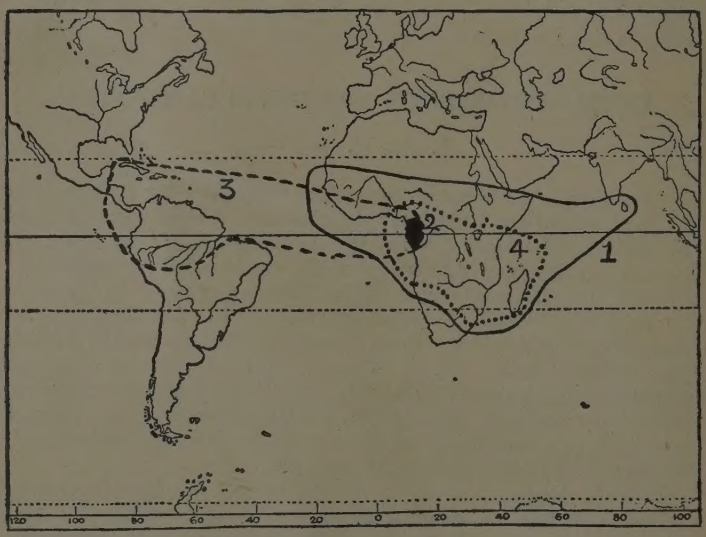
[1] Aubl. Pl. Guian. 1 : 528. [2] Spreng. Syst. Veg. 2 : 594. [3] Benth. in Journ. Linn. Soc. 3 : 79. [4] Tulasne in Ann. Sci. Nat. Sér. iv. 6 : 117. [5] N. E. Brown in Kew Bull. 1894 : 5. [6] O. Stapf in Journ. Linn Soc. 37 : 97. [7] Engler, Bot. Jahrb. 40 : 54. [8] Baillon, Adansonia 3 : 27.

(18410.) Wt. 132—21. 1,000. 6/25. Wy, & S., Ltd, Gp. 50. (4).

In adopting *Cassipourea* I have followed Tulasne and other authors quoted above, and thus continue to use the oldest name.

The genus ranges from Ceylon and S. India (1 species) through the Mascarenes and Tropical Africa, where the majority of the species are found, to the West Indies and Tropical America (see map below). The habit varies from small shrubs to large timber trees.

The habitat varies from mountains such as Mt. Ruwenzori (*C. ruwensorensis*) and Mt. Malosa (*C. malosana*) in Africa to river banks (C. *elliptica*) in the West Indies, and along the sandy sea shores of West Africa (*C. Barteri*). Unlike many other *Rhizophoraceae*, the genus does not inhabit Mangrove swamps.



Distribution of the genus *Cassipourea*.

1. Range of subgenus *Weihea*. 2. Subgenus *Lasiosepalum* (shaded black). 3. Subgenus *Cassipourea*. 4. Subgenus *Dactylopetalum*.

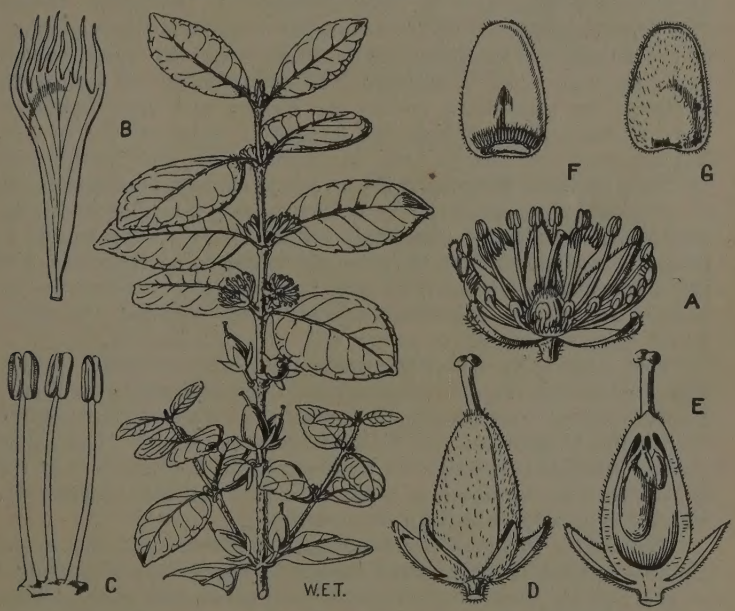
It is interesting to note that this habitat is correlated with a rather more primitive floral structure than the more specialized mangrove representatives of *Rhizophoraceae* which invariably have an inferior ovary and seeds devoid of endosperm.

Africa appears to have been the original home of the genus, the American species being closely allied to some on the west coast of Africa, and the Asiatic species to those of East Africa. This fact corresponds with what is known of the relationships of the mangroves of these respective areas.

The genus shows some progressive evolution, the calyx becoming tubular and the segments smaller. The development of the disk is correlated with a reduction in the number of stamens.

The disk is in some species flat and fleshy, and in others forms a little collar with the stamens inserted outside. In *C. paradoxa* 5 stamens are inserted outside and 10 on the disk. In *C. verticillata* and its allies all the stamens are inserted on the collar-like disk.

The subgenera have been founded on the form and lobing of the calyx and the presence or absence of a very noticeable thick-felted indumentum on the inner surface. This is found only in the subgenera *Lasiosepalum* and *Cassipourea*, and it is perhaps represented in some species of the subgenus *Dactylopetalum* by the puberulous tips of the calyx lobes.



Cassipourea Elliottii. A. Flower. B. Petal. C. Stamens showing the mode of insertion on the disk. D. Fruit. E. The same in longitudinal section showing arillate seeds, one of which is abortive. F. Stipule inner side showing the row of glands at the bottom. G. The same outer side.

Other characters seem to some extent to follow these subgenera. I have seen verticillate leaves only in the subgenus *Dactylopetalum* (*C. nodosa* and *C. verticillata*). Thonner, however, figures a specimen of *C. trichosticha* with verticillate leaves. The stipules are usually shortly triangular in *Dactylopetalum*, and larger in the other subgenera. The bracts, though almost invariably situated at the base of the pedicels, and in the subgenera *Cassipourea* and *Dactylopetalum* small or obsolete, are, however, at the top of the pedicels in the Ceylon species, and also in certain Madagascar species, a fact of interest from a phytogeographical point of view. The pedicels are articulated, usually

at the apex in *Weihea* and *Lasiosepalum*, and in the middle in *Cassipourea* and *Dactylopetalum*, though in the very distinct *C. Zenkeri* (*Dactylopetalum*) the pedicel, which is of a length only attained elsewhere in *Lasiosepalum*, is articulated at the apex. The calyx is as a rule 5-lobed, but sometimes 4- as in *C. Mildbraedii* (*Weihea*) and its allies, or up to 6- and 7- in the subgenus *Dactylopetalum*, 6 is also the rule in *C. obovata* (*Weihea*).

The petals are usually narrow, glabrous and fimbriate in *Weihea* and *Dactylopetalum*, but broader and rather lacerate in *Lasiosepalum* and *Cassipourea* and also in *C. Zenkeri* (*Dactylopetalum*). The stamens may be as numerous as 40 (*C. mollis*) in *Weihea*, falling to 8 in *Dactylopetalum* (*C. Mannii*). In the first three subgenera they are usually at least three times as many as the petals, but in *Dactylopetalum* only twice as many, except in *C. paradoxa* and *C. nodosa*. The indumentum of the ovary is useful for separating species in *Weihea* and *Dactylopetalum* (e.g., *C. trichosticha*, which has 3 lines of hairs on the ovary), but the ovary is always hairy in *Lasiosepalum* and *Cassipourea*. In the first three subgenera the ovary is usually 3-locular (4- in *C. obovata* and occasionally in *C. congoensis*), 2-locular in *Dactylopetalum*. The hairs often fall off as the fruit ripens, as in subgen. *Cassipourea*, but they are persistent in *C. euryoides*, and in the remarkable warted fruit of *C. ruwensorensis*. The fruits are usually red fleshy capsules dehiscing and exposing the seeds, which have a conspicuous yellow aril.

Very little is known of the economic properties of the species. The bark of some (e.g. *C. Afzelii* and *C. insignis*) is used medicinally by the natives; presumably it contains tannins. *C. ugandensis*, *C. Elliottii*, *C. Redslobii* and *C. rotundifolia* are said to yield useful timber, while it is recorded of *C. Barteri* that it yields a hard red timber used for firewood, as is the case with the allied mangroves which are greatly valued for this purpose.

The writer is much indebted to the Director of the Royal Botanic Gardens, Kew, and the Keeper of the Botany Department of the British Museum (Natural History), for affording facilities for the examination of material, to the authorities in Berlin, Paris and Florence for the loan of material, to Mr. W. E. Trevithick for the illustration of *C. Elliottii* on p. 243, and to Mr. J. Hutchinson for help and advice.

Cassipourea *Aubl.* Pl. Guian. 1. 528 (1775); hic emend. *Tita* Scop. Introd. 219 (1777). *Legnotis* Swartz Prod. 84 (1788). *Richaeia* Thou. Gen. Nov. Madag. 25 (1806). *Richeia* Poir. Encycl. Supp. 4: 680 (1816). *Weihea* Spreng. Syst. 2: 594 (1825). *Anstrutheria* Gardn. in Calc. Journ. Nat. Hist. 6: 344 (1846). *Dactylopetalum* Benth. in Journ. Linn. Soc. 3: 79 (1858). *Richea* O. Kuntze Rev. Gen. 235 (1891), non R. Br. (1810).

Arbores vel frutices. *Folia* decussata vel rarius verticillata, coriacea vel membranacea, simplicia; stipulae interpetiolares,

caducae. *Flores* solitarii vel complures, axillares, fasciculati, interdum ad nodos incrassatos dense glomerati, bracteati, pedicellis articulatis. *Calyx* valvatus, profunde vel leviter 4–7-lobatus, campanulatus vel patens, pilosus vel glaber. *Petala* alabastro inflexa, laciniata vel fimbriata, ambitu anguste vel late spatulata, glabra vel pilosa. *Stamina* 8–40, omnia aut in disco aut extra discum, vel alia intra et alia extra discum crassum vel membranaceum dentatum inserta, calyce aequantia vel usque ad triplo longiora; antherae glabrae vel rare pubescentes. *Ovarium* 2–4-loculare, liberum vel calycis basi leviter adnatum, loculis 2-ovulatis rariter apice vix confluentibus; ovula pendula. *Stylus* filiformis vel crassus, apice obscure lobatus. *Fructus* capsularis, carnosus, septifrage dehiscens; semina 2–4, arillata, recta, compressa vel angulata; testa coriacea; albumen carnosum; embryo rectus, cotyledonibus planis.

Clavis subgenerum et specierum.

*Calyx profunde lobatus, patens; species africanae vel asiaticae :
†Calyx intra glaber, extra pubescens....Subgenus 1. Weihea.
Bracteae apice vel medio pedicellorum insertae :
Folia basi rotundata; petioli 3 mm. longi; pedicelli 1 mm. longi; ovarium glabrum (Comoro Is.) .... 1. *ovata.*
Folia basi cuneata :
Pedicelli 3–4 mm. longi; petioli 1 cm. longi; ovarium pilosum (Madagascar) ..... 2. *madagascariensis.*
Pedicelli 2–3 mm. longi :
Ovarium glabrum; petioli 2·5 mm. longi; folia in parte superiore dentata vel integra (Madagascar) ..... 3. *leptoclada.*
Ovarium apice pubescens; petioli 3–7 mm. longi; folia integra (Ceylon and S. India) ....4. *ceylanica.*
Bracteae basi pedicellorum insertae vel flores sessiles :
‡Calyx 5-lobatus (exceptione 4-lobatus) :
¶Folia longe acuminata; species mascarenenses vel africanae orientales; calyx plerumque extra dense pubescens; folia plerumque leviter sinuato-dentata vel integra :
Ovarium omnino glabrum; folia basi longe cuneata, 7·5–11 cm. longa, 2·5–3·5 cm. lata, petiolis circiter 6 mm. longis (Mascarenes)..5. *lanceolata.*
Ovarium apice tantum pilis perpaucis instructum; folia 11–12·5 cm. longa coriacea, petiolis 8 mm. longis, versus apicem dentata (Madagascar) ..... 6. *sessiliflora.*
Ovarium omnino pilis indutum :
Calycis lobi circiter 4 mm. longi; folia plerumque crebre et distincte dentata, basi rotundata, plana :

Flores 1–5–nati :
Pedicelli circiter 7 mm. longi ; folia ellipticooblonga, margine profunde dentata (Abyssinia) ..... 7. *Avettae.*
Pedicelli circiter 3·5 mm. longi ; folia elliptica, margine dentata vel subintegra (Eritrea and British Somaliland) ....8. *abyssinica.*
Flores numerosi ; pedicelli usque ad 2 mm. longi ; folia elliptica margine leviter dentata (Eritrea) ..... 9. *Salvago-Raggei.*
Calycis lobi usque ad 3 mm. longi ; folia plerumque distanter dentata vel integra, plus minusve conduplicata :
Flores solitarii ; ovarium dense pilosum ; folia 4·5–7 cm. longa :
Folia integra, 2·5–3 cm. lata, petiolis circiter 4 mm. longis (Kenya)..... 10. *euryoides.*
Folia distanter dentata in parte superiore, petiolis circiter 6 mm. longis (Portuguese East Africa)..... 11. *Honeyi.*
Flores numerosi ; ovarium pilis perpaucis indutum ; folia 6–10 cm. longa (Madagascar) ..... 12. *phaeotricha.*

¶Folia vix acuminata :
§Ovarium omnino pubescens :
Folia utrinque glabra :
Folia basi cuneata, oblonga vel elliptica :
Folia vix dentata ; calycis lobi 3 mm. longi :
Folia 2·5 cm. lata ; flores perpauci ; petioli circiter 4 mm. longi ; stipulae glabrae (Aldabra) ..... 13. *Thomassetii.*
Folia 1·25–1·5 cm. lata ; flores solitarii ; petioli circiter 2·5 mm. longi ; stipulae extra pilosae (Madagascar) .....14. *microphylla.*
Folia plerumque dentata ; calycis lobi 5 mm. longi ; stipulae extra pilosae (Cape Province) ..... 19. *Flanaganii.*
Folia basi rotundata, plus minusve suborbicularia vel late elliptica :
Calyx extra dense pubescens ; folia obovato-elliptica ; pedicelli 2·5 mm. longi (Kenya) ..... 15. *celastroides.*
Calyx extra leviter pubescens ; folia subrotundata ; pedicelli 7 mm. longi (East Africa) ..... 16. *rotundifolia.*
Folia utrinque molliter hirsuta vel tomentosa :
Stamina 30–40 ; folia 3–5 cm. longa, 2·5–4·5 cm. lata, membranacea (Rhodesia) ....17. *mollis.*

Stamina 20; folia 4·5–10 cm. longa, 4–9 cm. lata, subcoriacea, leviter bullata (Tanganyika) ..... 18. *insignis.*

§Ovarium omnino glabrum:

Calycis lobi leviter et laxe pubescentes:

Pedicelli 3–4 mm. longi:

Flores 1–4–nati; stylus 4 mm. longus; stamina 15; frutex vel arbor ramosus, ramulis gracilibus, internodiis plerumque circiter 1 cm. longis; petioli circiter 5 mm. longi; stipulae circiter 3 mm. longae (Natal-Gazaland) ..... 20. *Gerrardii.*

Flores solitarii; stylus 3 mm. longus; stamina 20; arbor plerumque leviter ramosa, ramulis subrobustis, internodiis plerumque circiter 1 cm. longis; petioli circiter 4 mm. longi; stipulae circiter 7 mm. longae (Nyasa-Tanganyika) .... 21. *malosana.*

Pedicelli usque ad 2 mm. longi; flores 1–3–nati; petioli usque ad 8 mm. longi; folia obovata; nervi tertiarii crebre reticulati (Tanganyika) ..... 22. *Eickii.*

Calycis lobi dense pubescentes vel in fructu subglabrescentes:

Folia anguste lanceolato-oblonga, 1·5–2 cm. lata; ovarium 6–sulcatum (Angola) ..... 23. *huillensis.*

Folia elliptica vel oblonga, 2–5·5 cm. lata; ovarium 3–4–sulcatum; frutex; fructus appresse globosus (W. Africa)..24. *congoensis.*

§Ovarium apice tantum pubescens:

Folia plus minusve elliptica, basi rotundata vel subcuneata; calycis lobi 5; ovarium 3–loculare; flores perpauci; fructus ovoideus:

Folia plerumque dentata; calyx extra dense pilosus; folia margine plana; pedicelli 3–5 mm. longi; arbor magna (East Africa) ..... 25. *Elliottii.*

Folia plerumque integra; calyx extra tenuiter pilosus; folia margine leviter recurvata; pedicelli 3 mm. longi; frutex parvus (Portuguese East Africa)....26. *mossambicensis.*

Folia obovata, basi cuneata; calyx 5–6–lobatus; ovarium 4-loculare; flores numerosi (Portuguese East Africa)..... 27. *obovata.*

§Ovarium trisulcatum, sulcis pilosis, ceterum glabrum; folia margine profunde serrata; pedicelli 4·5 mm. longi; calyx extra leviter pilosus (Angola) ..... 28. *trichosticha.*

‡Calyx 4-lobatus (exceptione 5-lobatus) ; ovarium dense tomentosum ; folia longe acuminata :

Flores numerosi, sessiles, dense glomerati :

Folia leviter sinuato-dentata, omnino glabra, 15–17·5 cm. longa (St. Thomas).....29. *glomerata.*

Folia profunde dentata, costis subtus hirsutis, circiter 13 cm. longa (Belgian Congo) ..30. *Mildbraedii.*

Flores perpauci, pedicellati :

Fructus ovoideo-conicus, sicco niger ; folia 12–17 cm. longa (Belgian Congo) .....31. *mawambensis.*

Fructus ovoideus, sicco flavus ; folia usque ad 10 cm. longa (Uganda).....32. *ruwensorensis.*

†Calyx intra dense sericeo-villosus ; ovarium pubescens ; antherae pubescentes ; stamina 20–35, extra discum dentatum inserta ; nervi laterales non conjuncti ; species africanae occidentales ..... Subgenus 2. Lasiosepalum.

Nervi tertiarii reticulati ; folia apice rotundata abrupte et acutissime acuminata, basi plerumque longe cuneata ; stamina 20 (Gabon) ..... 33. *sericea.*

Nervi tertiarii subparalleli ; folia obtuse acuminata :

Folia apice abrupte acuminata, basi subrotundata ; pedicelli 1 cm. longi, subrobusti ; stamina 30–35 (Gabon) ..... 34. *schizocalyx.*

Folia apice leviter acuminata, basi cuneata ; pedicelli 1·5 cm. longi, graciles (Cameroons).. 35. *kamerunensis.*

*Calyx campanulatus, plerumque ad medium lobatus :

‖Calyx intra dense sericeo-villosus ; ovarium pubescens ; stamina 15–30, plerumque extra discum sinuatum inserta ; nervi laterales conjuncti .. Subgenus 3. Cassipourea.

Folia abrupte acuminata, submembranacea ; species africanae occidentales :

Flores pedicellati vel subsessiles ; calyx parvus, usque ad 3 mm. longus, 5-lobatus :

Folia longe acuminata 4·5–5·25 cm. lata, integra, nervis lateralibus prope marginem conjunctis (Sierra Leone, Liberia) .....36. *Afzelii.*

Folia 2–2·35 cm. lata, breviter acuminata :

Folia undulato-dentata, nervis lateralibus prope marginem conjunctis (Sierra Leone, Liberia) ..... 37. *parvifolia.*

Folia integra, nervis lateralibus inter costam et marginem conjunctis (S. Nigeria) .. 38. *eketensis.*

Flores sessiles ; calyx 4 mm. longus, 4-lobatus ; folia longe acuminata, integra, nervis lateralibus inter costam et marginem conjunctis (Gabon).. 39. *plumosa.*

Folia plerumque sensim acuminata et coriacea vel rariter membranacea ; species americanae :

‡Flores sessiles, vel subsessiles ; folia petiolata ; calyx extra omnino glaber :

Petala pilosa :
Folia 11–13 cm. longa, 5–7 cm. lata, basi cuneata, frequenter leviter sinuata, prominente reticulata (Trinidad) ..... 40. *latifolia.*
Folia 6–13 cm. longa, 2·5–5 cm. lata, basi rotundata vel cuneata (Trop. South America and Trinidad) ..... 47. *guianensis.*
Petala glabra ; folia 3·5–7 cm. longa, usque ad 3 cm. lata :
Folia basi rotundata (Jamaica)..... 41. *subsessilis.*
Folia basi subcordata (Jamaica) .....42. *subcordata.*
‡Flores distincte pedicellati ; folia petiolata :
Pedicelli 2–5 mm. longi, glabri ; folia 4–10·5 cm. longa, coriacea :
Folia apice acuta vel leviter acuminata ; ramuli plerumque atrobrunnei (West Indies and Central America) ..... 43. *elliptica.*
Folia apice rotundata ; ramuli cinerei (Santo Domingo) ..... 44. *obtusa.*
Pedicelli 6 mm. longi, pilosi ; folia 13–16 cm. longa, membranacea, acuminata (Peru)....45. *peruviana.*
‡Flores sessiles ; calyx extra plus minusve pilosus foliis petiolatis vel calyx glaber foliis sessilibus :
Calyx extra pilosus vel villosus ; folia 6–13 cm. longa, petiolata :
Calyx dense villosus ; costae foliorum villosae ; stipulae magnae (British Guiana) ..... 46. *lasiocalyx.*
Calyx extra leviter pilosus ; costae foliorum glabrae vel ciliis perpaucis instructae ; stipulae parvae (Trop. S. America and Trinidad) .. 47. *guianensis.*
Calyx extra glaber ; folia sessilia, 5–7 cm. longa ; costa glabra (Brazil)..... 48. *Spruceana.*
‖Calyx utrinque glaber vel leviter pilosus ; stamina 8–18, plerumque in disco membranaceo inserta ; antherae rariter pilosae ; ovarium plerumque 2–loculare ; species africanae ..... Subgenus 4. DACTYLOPETALUM.
Calyx extra pilosus ; antherae pilosae ; pedicelli apice articulati ; ovarium pilosum (Cameroons) :
Pedicelli 1·5 cm. longi ; ramuli maturi glabri ; petioli 6–8 mm. longi .....49. *Zenkeri.*
Pedicelli 0·15 cm. longi ; ramuli piloso-tomentosi ; petioli usque ad 3·5 mm. longi.....50. *Dinklagei.*
Calyx utrinque glaber ; antherae glabrae ; pedicelli medio articulati :
‡Flores sessiles vel subsessiles :
*Folia opposita, decussata ; nodi haud vel vix incrassati ; stamina 10–12 calycem excedentia :
Petioli brevissimi ; folia 2–2·5 cm. lata ; ramuli lenticellis copiosis induti (Madagascar).. 51. *myriocarpa.*
Petioli 8–12 mm. longi ; folia ultra 3 cm. lata ; ramuli lenticellis inconspicuis :

Folia acuminata :
Ovarium apice hirsutum ; folia infra laxe reticulata (Madagascar) ..... 52. *gummiflua.*
Ovarium glabrum ; folia infra crebre et conspicue reticulata (Belgian Congo).....53. *Rogersii.*
Folia apice rotundata vel subacuta ; ovarium apice pilosum (Uganda) ..... 54. *ugandensis.*
*Folia verticillata, subsessilia, 6·5–9 cm. lata ; nodi valde incrassati et pluriflori ; stamina 15–18 ; ovarium glabrum (Angola)..... 55. *nodosa.*
‡Flores pedicellati ; folia petiolata :
Stamina 8, calycem vix excedentia ; ovarium glabrum ; calycis lobi apice tomentelli (St. Thomas) ..... 56. *Mannii.*
Stamina calyce duplo longiora :
Pedicelli 1·5–2 mm. longi ; ovarium glabrum vel pubescens ; stamina 10–12 ; folia decussata :
Ovarium omnino pubescens ; flores in ramulos annotinos dispositi (W. Africa).....57. *Barteri.*
Ovarium glabrum ; flores in ramulos hornotinos dispositi :
Flores numerosi ; ramuli subrobusti, lenticellis albis copiosis induti ; pedicelli 2 mm. longi ; folia 5–6·5 cm. lata (Nigeria) ..... 58. *glabra.*
Flores 3–7–nati ; ramuli gracillimi lenticellis inconspicuis ; pedicelli usque ad 4 mm. longi ; folia 3·5–4·5 cm. lata (Annobon) .. 59. *annobonensis.*
Pedicelli 4–5 mm. longi ; ovarium plus minusve pubescens :
Stamina 15 ; ovarium apice leviter pilosum ; folia decussata (Seychelles)..... 60. *paradoxa.*
Stamina 10–12 ; ovarium omnino breviter pubescens :
Folia decussata, integra ; pedicelli 5 mm. longi (East Trop. Africa) ..... 61. *Redslobii.*
Folia verticillata, plerumque leviter sinuata ; pedicelli 4 mm. longi (Natal).... 62. *verticillata.*

Subgenus 1. Weihea (Spreng. pro gen.).

(Sect. *Euweihea* Engl., sub *Weihea*).

1. **Cassipourea ovata** *Tul.* in Ann. Sci. Nat. Sér. iv. 6 : 121 (1856). *Weihea ovata* Baill. in Adansonia 3 : 38 (1862). *Richea ovata* O. Kuntze Rev. Gen. 235 (1891).

Frutex ; ramuli glabri, hornotini flavo-virides, annotini brunnei, lenticellis albis induti. *Folia* ovata vel oblonga, basi rotundata, apice obtuse et vix acuminata, 3·25–5 cm. longa, 2–3 cm. lata, integra, margine leviter revoluta, coriacea, glabra ; nervi laterales prope marginem conjuncti, nervis tertiariis reticulatis ; petioli circiter 3 mm. longi, glabri ; stipulae lanceolatae, obtusae, glabrae, circiter 3·5 mm. longae. *Flores*

1–3, subsessiles, bracteis apice pedicellorum glabris caducis. *Calyx* profunde 5–6-lobatus, extra fulvo-sericeus, intra glaber, lobis angustis oblongis. *Ovarium* glabrum.
Mascarene Islands. Comoro Is.: Chongui, Mayotte, July 1848, *Boivin* 3410 (type).

2. **Cassipourea madagascariensis** *DC.* in DC. Prod. 3: 34 (1828); Tul. in Ann. Sci. Nat. Sér. iv. 6: 119 (1856). *Richaeia madagascariensis* Thou. Gen. Nov. Madag. 25 (1806). *Richeia madagascariensis* Poir. Encycl. Supp. 4: 680 (1816). *Weihea madagascariensis* Spreng. Syst. 2: 594 (1825). *Anstrutheria madagascariensis* Benth. in Journ. Linn. Soc. 3: 78 (1859). *Richea madagascariensis* O. Kuntze Rev. Gen. 235 (1891); Baill. Hist. pl. Madag. Atlas t. 325 (1894).
Frutex; ramuli annotini lenticellis pallidis induti. *Folia* obovata, elliptica vel oblonga, basi abrupte cuneata, apice brevissime et obtuse acuminata, 5–6 cm. longa, 2·5–3 cm. lata, superne obsolete serrulata, glabra; nervi laterales prope marginem conjuncti, nervis tertiariis reticulatis; petioli circiter 1 cm. longi; stipulae oblongo-triangulares, 3–4 mm. longae. *Flores* 1–2; pedicelli 3–4 mm. longi, pilosi, apice articulati; bracteae medio pedicellorum insertae. *Calyx* profunde 5-lobatus, extra dense pilosus, intra glaber; lobi lanceolati. *Petala* ovato-oblonga, laciniata. *Stamina* circiter 15. *Ovarium* subhemisphaericum, 3-loculare, parce fulvo-sericeum.
Mascarene Islands. Madagascar: near Angoutsi, *Ricardo* 7 (type) not seen.

3. **Cassipourea leptoclada** *Tul.* in Ann. Sci. Nat. Sér. iv. 6: 125 (1856). *Weihea leptoclada* Baill. in Adansonia 3: 38 (1862). *Richea leptoclada* O. Kuntze Rev. Gen. 235 (1891).
Frutex; ramuli hornotini virides, pilis perpaucis induti, gracillimi, annotini brunnei, lenticellati, glabri. *Folia* elliptica, basi abrupte cuneata, apice longe acuminata, 6·5–8 cm. longa, 2·75–3·75 cm. lata, superne dentata vel integra, membranacea, glabra; nervi laterales prope marginem conjuncti, nervis tertiariis reticulatis; petioli 2·5 mm. longi, supra pilosi; stipulae ovatae, extra appresse ferrugineo-pilosae, intra glabrae 3 mm. longae. *Flores* 1–5; bracteae apice pedicellorum insertae. *Calyx* extra dense rufo-sericeus, intra glaber, profunde 5-lobatus; lobi lanceolati. *Petala* angusta, apice fimbriata. *Stamina* circiter 15. *Ovarium* glabrum, 3-loculare.
Mascarene Islands. N. Madagascar: Gulf of Suarez, *Boivin* 2666 (type).

4. **Cassipourea ceylanica** *Alston* comb. nov. *Anstrutheria ceylanica* Gardn. in Calc. Journ. Nat. Hist. 6: 345, t. 4 (1846). *Weihea zeylanica* Baill. in Adansonia 3: 38 (1862); Bedd. Fl. Sylv. t. 194; Trimen Hbk. to the Fl. of Ceylon 2: 156. *Anstrutheria zeylanica* Henslow in Hook. f. Fl. Brit. Ind. 2: 441 (sphalm) (1879). *Weihea ceylanica*

Henslow l.c. (sphalm). *Richea zeylanica* O. Kuntze Rev. Gen. 235 (1891).

Frutex majus, e basi multiramosus; ramuli brunnei, glabri. *Folia* elliptico-lanceolata, basi cuneata, apice leviter et obtuse acuminata, 4–9·5 cm. longa, 2–5 cm. lata, integra, glabra; nervi laterales prope marginem conjuncti, nervis tertiariis reticulatis; petioli 3–7 mm. longi; stipulae obovatae, 2–3 mm. longae, glabrae vel juniores extra leviter pubescentes. *Flores* 1–3; pedicelli 2–3 mm. longi; bracteae apice pedicellorum, leviter ciliatae, 2 mm. longae. *Calyx* profunde 5-lobatus; lobi oblongo-lanceolati, circiter 6 mm. longi, 3 mm. lati, extra dense appresse pubescentes, intra glabri. *Petala* alba, spatulata, calyce duplo longiora, apice laciniata, glabra. *Stamina* circiter 30, in disco annulato inserta, 5 mm. longa. *Ovarium* triloculare, apice pubescens.

S. India. Kuttalam, *Wight* 2217; Aug. 1835, *Wight* 993; Mundanthori Ghaut, Tinnevelly, June 1901, *C. A. Barber* 3230; Dec. 1871, *Beddome* 191; Mysore and Carnatic, *G. Thomson* 123.

Ceylon. 1796, *Klein*; Galle, 1847, *Gardner* 87; Kandy, Oct. 1848, *Thwaites*; without exact locality, *Champion*; 500 m. alt., *Thwaites* C.P. 1116; 1839, *Mackenzie*; 1838, *Walker* 31.

Vernacular names: Kannu (Tamil), Pana (Sinhalese).

According to Trimen, Handbook to the Flora of Ceylon Vol. 2, p. 156, this species is found in low country principally in the dry districts, where it is common, but rare in the moist region, e.g., Kalutara, Galle, Kandy. Fl. July–Sept.

5. **Cassipourea lanceolata** *Tul.* in Ann. Sci. Nat. Sér. iv. 6: 121 (1856). *Weihea lanceolata* Baill. in Adansonia 3: 38 (1862). *Richea lanceolata* Baill. Hist. Pl. Madag. Atlas t. 323 (1894).

Frutex 3–4 m. altus; ramuli brunnei, glabri. *Folia* oblongo-elliptica, basi cuneata, apice abrupte et plerumque longe acute acuminata, 7·5–11 cm. longa, 2·5–3·5 cm. lata, integra vel rariter dentata, subcoriacea, glabra; nervi laterales prope marginem conjuncti, nervis tertiariis reticulatis; petioli 6 mm. longi, glabri; stipulae glabrae sed apice dorso pubescentes, lanceolatae, 7·5 mm. longae. *Flores* plerumque 2; pedicelli leviter pilosi, 5 mm. longi, apice articulati; bracteae parvae. *Calyx* profunde 5-lobatus, extra pilosus, intra glaber; lobi 4 mm. longi, lanceolati. *Petala* angusta, apice laciniata, glabra. *Stamina* circiter 15. *Ovarium* triloculare, glabrum. *Fructus* glaber.

Mascarene Islands. Nossi-bé, 1841, *Pervillé* 391, 479 (not seen). Comoro Islands: Mayotte, Bouzi, *Boivin* 3410 (not seen); Moussa-Péré, *Boivin* (not seen).

6. **Cassipourea sessiliflora** *Alston* comb. nov. *Weihea sessiliflora* Bak. in Journ. Linn. Soc. 21. 391 (1884).

Arbor ; ramuli glabri, hornotini flavo-virides, annotini brunnei. *Folia* elliptica, basi cuneata, apice abrupte obtuse acuminata, 11–12·5 cm. longa, 4–5·5 cm. lata, integra sed plerumque superne dentata, subcoriacea, glabra ; nervi laterales intra marginem circiter 8 mm. conjuncti, nervis tertiariis reticulatis ; petioli 8 mm. longi, glabri ; stipulae caducae, ovatae, basi rotundatae, 4 mm. longae, extra pilosae. *Flores* 2–4 axillares, sessiles ; bracteae circiter 2 mm. longae, plerumque leviter appresse pilosae. *Calyx* profunde 5–6-lobatus, extra dense sericeo-pilosus, intra glaber ; lobi lanceolati. Petala extra sericea (*Baker*). *Stamina* numerosa. *Ovarium* apice ciliis perpaucis ornatum.

Mascarene Islands. Central Madagascar: *Baron* 2583 (type).

7. **Cassipourea Avettae** *Alston* comb. nov. *Weihea Avettae* Chiov. in Ann. Bot. Roma 9 : 321 (1911).

Arbor ? ; ramuli glabri vel rariter leviter pilosi, atropurpurei. *Folia* elliptico-oblonga, basi cuneata vel subrotundata, apice longe acuminata, 6–9·5 cm. longa, 2·75–3·25 cm. lata, margine profunde dentata, subcoriacea, glabra vel subtus pilis perpaucis induta costa pilosa excepta ; nervi laterales prope marginem conjuncti, nervis tertiariis numerosis reticulatis ; petioli 5 mm. longi, leviter pilosi ; stipulae caducae vel subpersistentes, lanceolatae, extra appresse pilosae, 1 cm. longae. *Flores* 2–5 ; pedicelli circiter 7 mm. longi, pilosi, apice articulati ; bracteae leviter pilosae. *Calyx* profunde 5-lobatus, extra dense pilosus, intra glaber ; lobi late lanceolati, 6 mm. longi. *Petala* glabra, spatulata, 6 mm. longa, fimbriata. *Stamina* circiter 15 in disco annulato inserta. *Ovarium* triloculare, dense pilosum.

Tropical Africa. Abyssinia ; Scioa, Lutotto hills in the valley of the little Cabanna, on dry slopes among bushy vegetation, 2700 m., Apr. 1909, *Negri* 262 (type).

8. **Cassipourea abyssinica** *Alston* comb. nov. *Weihea abyssinica* Engl. in Engl. Bot. Jahrb. 54 : 362 (1917).

Arbor 10–13 m. alta (*Godman*) ; ramuli rariter leviter pilosi, juventute flavo-virides, demum atropurpurei, maturi nigrescentes. *Folia* elliptica, basi cuneata, apice longe acuminata, in ramulis novellis robustis 6–11·5 cm longa, 3·25–4·5 cm. lata, in vetustioribus 3·75–5·5 cm. longa, 1·5–2·25 cm. lata, dentata vel rariter subintegra, subcoriacea, glabra costa pilosa excepta vel subtus pilis perpaucis induta ; nervi laterales prope marginem conjuncti, nervis tertiariis numerosis reticulatis supra inconspicuis ; petioli 2–5 mm. longi, leviter pilosi ; stipulae caducae vel subpersistentes, lanceolatae, extra leviter pilosae, 7 mm. longae. *Flores* 1–3 ; pedicelli 3·5 mm. longi, pilosi, apice articulati ; bracteae leviter pilosae. *Calyx* profunde 5-lobatus, rariter 4-lobatus extra dense pilosus, intra glaber ; lobi late lanceolati. *Petala* glabra, spatulata, fimbriata. *Stamina*

circiter 20 in disco annulato inserta. *Ovarium* triloculare, dense pilosum.
Tropical Africa. Eritrea: Plateau of Kohaito, in shady places in the river gorge, 2600–2700m., May 1894, *Schweinfurth* 595 (type). British Somaliland: Mount Wargah, 2300 m., only found near the top of the mountain, March 1920, *Godman* 190.

9. **Cassipourea Salvago-Raggei** *Alston* comb. nov. *Weihea Salvago-Raggei* Chiov. in Ann. Bot. Roma 9: 62 (1911).

Arbor vel arbuscula; ramuli juventute pilosi, subrobusti, atro-purpurei. *Folia* elliptica, basi cuneata vel subrotundata, apice longe acuminata, 4–7·5 cm. longa, 2–3·25 cm. lata, leviter dentata, subtus minute puberula; costa pilosa; nervi laterales prope marginem conjuncti, supra obscuri, nervis tertiariis reticulatis obscuris; petioli 4 mm. longi; stipulae ovatae, 5 mm. longae, extra pilosae. *Flores* numerosi; pedicelli 2 mm. longi, basi bracteati, leviter pilosi. *Calyx* profunde 5-lobatus, extra dense pilosus, intra glaber; lobi late lanceolati, 4 mm. longi. *Petala* spatulata, 6 mm. longa, apice fimbriata. *Stamina* circiter 15. *Ovarium* triloculare, dense et longe pilosum.
Tropical Africa. Eritrea: Reg. Acchelé Guzai; Amba Debra, 2900 m., Aug. 1902, *Pappi* 2577 (type): Reg. Mensa; Rora Ualicaué-Ham Ham, 1800–2600 m., *Terracciano* and *Pappi* 740 (not seen), Rora Ualicaué ovest, 1900 m., *Terracciano* and *Pappi* 608 (not seen).

10. **Cassipourea euryoides** *Alston* sp. nov.

Arbor?; ramuli atro-brunnei juventute leviter pilosi. *Folia* elliptica, basi cuneata, apice longe et obtuse acuminata, 4·5–6 cm. longa, 2·5–3 cm. lata, integra, glabra; costa siccitate recurvata; nervi laterales inconspicui, prope marginem conjuncti, nervis tertiariis reticulatis; petioli circiter 4 mm. longi, glabri vel leviter pilosi; stipulae extra leviter pilosae, 3·5 mm. longae. *Flores* solitarii; pedicelli 2 mm. longi, apice articulati. *Calyx* profunde 5–lobatus, extra dense appresse pilosus, intra glaber; lobi anguste lanceolati circiter 3·5 mm. longi. *Petala* fimbriata, glabra, calyce excedentia. *Stamina* non visa. *Ovarium* triloculare dense pubescens. *Fructus* ovoideus dense pubescens, stylo glabro persistente coronatus, circiter 4·5 mm. longus, 3·5 mm. in diametro, in 3 valvis dehiscens.
Tropical Africa. Kenya Colony: north of Mombasa to Lamu and Witu, 1902, *Whyte* 22 (type).
Vernacular name: Masusi.

11. **Cassipourea Honeyi** *Alston* sp. nov.

Arbor 20 m. alta, caule cylindrico, cortice cinereo maculato; ramuli juventute leviter pilosi, brunnei. *Folia* persistentia, elliptica, basi cuneata, apice longe et acute acuminata, 4·5–7 cm. longa, 1·75–2·5 cm. lata, plerumque in parte superiore leviter

sinuato-dentata, coriacea, utrinque glabra ; nervi laterales inconspicui, prope marginem conjuncti, nervis tertiariis reticulatis ; petioli 6 mm. longi, graciles, juventute pilosi, demum glabri ; stipulae lanceolatae extra pilosae, circiter 4 mm. longae. *Flores* solitarii, pedicellis circiter 3 mm. longis. *Calyx* profunde 5–lobatus, extra dense appresse albo-pilosus, intra glaber ; lobi lanceolati, acuti, circiter 3 mm. longi. *Petala* et stamina non visa. *Ovarium* dense et longe sericeo-villosum ; stylus glaber.

Tropical Africa. Portuguese East Africa : tall tree with soft white timber, in dense forest, Siluvu Hill, Nov. 1923, *Honey* 757 (type).

Vernacular names : M'pepe, N'yackananga, M'gosi (*Honey*).

12. **Cassipourea phaeotricha** *Tul.* in Ann. Sci. Nat. Sér. iv. 6 : 122 (1856). *Weihea phaeotricha* Baill. in Adansonia 3 : 39 (1862). *Richea phaeotricha* O. Kuntze Rev. Gen. 235 (1891). *Weihea lanceolata* Engl. in Engl. Bot. Jahrb. 40 : 51, t. 1D (1907) non Baill.

Frutex ; ramuli hornotini ferruginei, tomentosi, annotini brunnei. *Folia* elliptica, basi cuneata, apice longe acuminata, 6–10 cm. longa, 2–3 cm. lata, coriacea, glabra, integra vel denticulata ; nervi laterales prope marginem conjuncti, nervis tertiariis reticulatis ; petioli 5 mm. longi, juventute pilosi ; stipulae ovatae, extra pilosae. *Flores* numerosi, pedicellis 2–3 mm. longis dense pilosis apice articulatis ; bracteae basi rotundatae, caducae, 1·5 mm. longae, pilis perpaucis indutis. *Calyx* profunde 5–lobatus, extra dense sericeo-villosus, intra glaber ; lobi lanceolati, 2·5 mm. longi. *Petala* laciniata. *Ovarium* triloculare, pilis perpaucis indutum.

Mascarene Islands. Nossi-bé Island, *Pervillé* (type) ; Sept. 1879, *Hildebrandt* 3202.

13. **Cassipourea Thomassetii** *Alston* comb. nov. *Weihea Thomassetii* Hemsl. in Journ. Bot. 54 : Suppl. ii. 14 (1916).

Frutex ; ramuli brunnei, glabri, juventute flavi. *Folia* elliptica, basi cuneata, apice plerumque breviter acuminata, 3·5–6 cm. longa, 2·5 cm. lata, integra vel sinuato-dentata, coriacea, glabra, siccitate costa recurvata : nervi laterales prope marginem conjuncti, nervis tertiariis reticulatis ; petioli circiter 4 mm. longi, glabri ; stipulae glabrae, 3 mm. longae. *Flores* 1–5 ; pedicelli pilosi, 3 mm. longi, apice articulati ; bracteae parvae. *Calyx* profunde 5–lobatus rariter 4–lobatus, extra leviter appresse pubescens, intra glaber ; lobi 3 mm. longi, lanceolati. *Petala* angusta, 5 mm. longa, apice laciniata. *Stamina* circiter 15. *Ovarium* 3–loculare, longe pilosum.

Mascarene Islands. Aldabra : growing in sheltered places, April 1907, *Thomasset* 224 (type).

The four preceding species come very near together.

14. **Cassipourea microphylla** *Tul.* in Ann. Sci. Nat. Sér. iv. 6 : 124 (1856). *Weihea microphylla* Baill. in Adansonia 3 : 38 (1862). *Richea microphylla* O. Kuntze Rev. Gen. 235 (1891). Baill. Hist. Pl. Madag. Atlas t. 326 (1894).

Frutex ; ramuli hornotini leviter pilosi. *Folia* oblongo-lanceolata, basi cuneata, apice rotundata vix acuminata, 3–4 cm. longa, 1·25–1·5 cm. lata, integra vel margine rariter dentibus perpaucis instructa ; nervi laterales prope marginem conjuncti, nervis tertiariis reticulatis ; petioli 2·5 mm. longi ; stipulae minutae, extra pilosae, intra subglabrae. *Flores* solitarii ; pedicelli 4 mm. longi, leviter hirsuti, apice articulati ; bracteae minutae, caducae. *Calyx* profunde 5–lobatus, extra appresse sericeo–pilosus, intra glaber ; lobi lanceolati, 3 mm. longi. *Petala* laciniata. *Stamina* 10–15. *Ovarium* pilosum, triloculare. *Fructus* leviter pilosus.

Mascarene Islands. Madagascar : sandy sea coast of W. Madagascar, Ambongo, *Pervillé* 534 (type).

15. **Cassipourea celastroides** *Alston* sp. nov.

Frutex vel arbuscula ; ramuli brunnei, juventute pilosi. *Folia* obovato-elliptica, basi subrotundata, apice rotundata, 2·25–3·25 cm. longa, 1·5–2·75 cm. lata, prope apicem dentata vel rare integra, coriacea, utrinque glabra ; nervi laterales prope marginem conjuncti, nervis tertiariis paucis reticulatis ; petioli 3·5 mm. longi, glabri ; stipulae subpersistentes, subtriangulares, obtusae, pilosae, demum glabrae, 3 mm. longae. *Flores* solitarii ; pedicelli pilosi, 2·5 mm. longi ; bracteae 2 mm. longae. *Calyx* profunde 5-lobatus, extra dense pilosus, intra glaber ; lobi 4 mm. longi, lanceolati. *Petala* angusta, apice laciniata, calyce aequantia. *Stamina* c. 25, alia in disco annulato alia extra discum inserta. *Ovarium* pilosum ; stylus glaber, 2 mm. longus, apice in stigmate incrassatus.

Tropical Africa. Kenya Colony : Taita, Ndara Mt., 600–900 m., Feb. 1877, *Hildebrandt* 2465 (type) ; Ukamba, Kisui, May 1877, *Hildebrandt* 2812.

16. **Cassipourea rotundifolia** *Alston* comb. nov. *Weihea rotundifolia* Engl. in Engl. Bot. Jahrb. 37 : 440 (1900).

Arbor magna caule nudo ; ramuli brunnei, juventute sparse pilosi. *Folia* subrotundata, supra nitida, basi rotundata, apice subrotundata, 1·8–3·5 cm. longa, 1·8–3·5 cm. lata, integra vel sparse dentata, margine leviter recurva, coriacea, glabra vel costa leviter hirsuta ; nervi laterales prope marginem conjuncti, nervis tertiariis crebre reticulatis ; petioli 3 mm. longi, leviter pilosi ; stipulae obovatae, pilosae, 4 mm. longae. *Flores* 1–3 ; pedicelli pilosi, 7 mm. longi, apice articulati ; bracteae parvae, caducae. *Calyx* profunde 5-lobatus, extra parce appresse pilosus, intra glaber ; lobi circiter 5 mm. longi, lanceolati. *Stamina* circiter 20. *Ovarium* triloculare, longe et dense pilosum.

Tropical Africa. Tanganyika Territory: Uluguru, Lukwangule Plateau, 2300 m., in high forest, *Stuhlmann* 9204 (type). Kenya Colony: Nairobi Arboretum, Apr. 1919, *Battiscombe* 930.

17. **Cassipourea mollis** *Alston* comb. nov. *Weihea mollis* R. E. Fries Schwed. Rhod. Kongo Ex. Bot. 1: 165, t. 14 (1914).

Frutex 2–3 m. altus; ramuli juventute tomentosi. *Folia* orbicularia, basi rotundata vel subcuneata, apice rotundata obtusa vel subacuta, 3–5 cm. longa, 2·5–4·5 cm. lata, minute dentata, membranacea, utrinque dense et molliter tomentosa; petioli 3–4 mm. longi, tomentosi; stipulae ovato-triangulares, 5–6 mm. longae, 3–4 mm. latae, utrinque cinereo-tomentellae. *Flores* solitarii; pedicelli 3–5 mm. longi, molliter hirsuti. *Calyx* profunde 5-lobatus, 1 cm. longus, extra dense sericeo-hirsutus, intra glaber; lobi lanceolati. *Petala* alba, oblanceolata, laciniata, 15–16 mm. longa. *Stamina* 30–40. *Ovarium* dense cinereo-hirsutum.

Tropical Africa. N.E. Rhodesia: Abercorn, in dry bush, *R. E. Fries* 1251 (co-type); Kalambo between Abercorn and Bismarckburg, in dry bush, Nov., *R. E. Fries* 1251a (co-type).

18. **Cassipourea insignis** *Alston* comb. nov. *Weihea insignis* Engl. in Engl. Bot. Jahrb. 54: 359 (1917).

Frutex 3–4 m. altus; ramuli robusti juventute dense pilosi. *Folia* breviter petiolata, subrotundata, basi rotundata, apice rotundata vel subacuminata, 4·5–10 cm. longa, 4–9 cm. lata, superne dentata, subcoriacea, supra breviter et rigide hirsuta, leviter bullata, subtus densissime molliter tomentosa, nervis lateralibus prope marginem conjunctis, nervis tertiariis numerosissimis supra impressis; stipulae ovatae, leviter pilosae, 8 cm. longae, 4 cm. latae. *Flores* perpauci vel solitarii; pedicelli 2 mm. longi, pilosi. *Calyx* profunde 5-lobatus, extra dense pilosus, intra glaber; lobi lanceolati, 1 cm. longi, 4 mm. lati. *Petala* apice laciniata. *Stamina* circiter 20. *Ovarium* 3–4-loculare, dense puberulum demum glabrescens.

Tropical Africa. Tanganyika Territory: Tabora, *v. Trotha* 44 (type); Kilimatinde, *Claus* 2212.

Medicinal plant (*Claus*). Hard wood not eaten by termites (*v. Trotha*).

Vernacular names: Mlugalla (*v. Trotha*), Banilafisi (*Claus*).

19. **Cassipourea Flanaganii** *Alston* comb. nov. *Weihea Flanaganii* Schinz in Bull. Herb. Boiss. 5: 868 (1897). *W. madagascariensis* T. R. Sim ? Forest Fl. of Cape Col. t. 70 f. 2 non Spreng.

Frutex ?; ramuli hornotini brunnei pilosi. *Folia* obovato-oblonga, basi cuneata, apice obtusa, leviter acuminata, 2·5–4 cm. longa, 1·25–2 cm. lata, dentata vel subintegra, rigida, glabra nervis leviter pilosis exceptis; nervi laterales prope marginem conjuncti; petioli 4 mm. longi; stipulae ovato-lanceolatae,

3 mm. longae, extra pilosae. *Flores* solitarii ; pedicelli 5 mm. longi, apice usque ad medium articulati, pilosi ; bracteae minimae. *Calyx* profunde 5-lobatus, extra tenuiter canescens, intra glaber ; lobi lanceolati, 5 mm. longi, 1–2 mm. lati. *Petala* lanceolata, apice laciniata, glabra. *Stamina* circiter 20, in disco inserta. *Ovarium* triloculare, dense albo-sericeum ; stylus glaber, circiter 4 mm. longus. *Fructus* tenuiter pubescens, globosus.

South Africa. Cape Province : near Komgha, in woods at Prospect Farm, 650 m., Dec. 1890, *Flanagan* 64 (type).

20. **Cassipourea Gerrardii** *Alston* comb. nov. *Weihea Gerrardii* Schinz in Bull. Herb. Boiss. 5 : 867 (1897). *W. natalica* v. Brehmer in Engl. Bot. Jahrb. 54 : 361 (1917).

Frutex vel arbor 15 m. alta (*Rudatis*) ; ramuli cinereo-fusci, hornotini pilosi. *Folia* lanceolato-oblonga, basi cuneata, apice fere subacuto-acuminata, 3–6·5 cm. longa, 1–2·5 cm. lata, dentata, subcoriacea, glabra vel costa hirsuta ; nervi laterales prope marginem conjuncti, nervis tertiariis reticulatis ; petioli 5 mm. longi ; stipulae ovato-lanceolatae, 3 mm. longae, extra pilosae, intra glabrae. *Flores* 1–4 ; pedicelli pilosi, 3–4 mm. longi, apice articulati ; bracteae 2 mm. longae, tenuiter pilosae. *Calyx* profunde 5–lobatus, extra tenuiter pubescens, intra glaber ; lobi ovato-lanceolati, 5 mm. longi, 2 mm. lati. *Petala* alba, spatulata, apice fimbriata, fimbriis circiter 10, utrinque glabra. *Stamina* circiter 15, 5 mm. longa. *Ovarium* 3-loculare, glabrum, stylo 5 mm. longo glabro. *Fructus* ellipsoideo-oblongus.

Tropical Africa. Gazaland : Mount Pene Forest, 2000–2250 m., Sept. 1906, *Swynnerton* 1325.

South Africa. Transvaal : Zoutpansberg, Hangklip, 1900 m. *Legat* 79 ; Hout-Bosh-Berg, in bush, Aug. 1880, *Nelson* 497. Swaziland : M'babane, common on kopjes, 1500 m., Jan. 1905, *Burtt Davy* 2784. Natal : Inanda, Jan. 1880, *Wood* 684 (type) ; Zululand, July 1865, *Gerrard* 1655 ; Alexandra dist., Dumisa, 450 m., stony river bank, Oct. 1910, *Rudatis* 1181 ; near R. Umzingati, 250 m., Sept. 1899, *Wood* 7698 ; Krantzkloof, 550 m., Aug. 1913, *Wood* 12329. Pondoland : Um-Tantu River, *Burtt Davy* 15329.

21. **Cassipourea malosana** *Alston* comb. nov. *Weihea malosana* Baker in Kew Bull. 1897 : 267. *W. ilicifolia* v. Brehmer in Engl. Bot. Jahrb. 54 : 362 (1917).

Arbor ; ramuli flavo-cinerei, juventute pilosi. *Folia* oblonga, basi cuneata, apice subacuta, 3·5–5·5 cm. longa, 1·75–3 cm. lata, dentata, subcoriacea, glabra vel costa hirsuta ; nervi laterales prope marginem conjuncti, nervis tertiariis reticulatis ; petioli 4 mm. longi ; stipulae lanceolatae, 7 mm. longae, extra pilosae, intra glabrae. *Flores* solitarii ; pedicelli pilosi, 4 mm. longi, apice articulati ; bracteae 1–2mm. longae, appresse pilosae. *Calyx* profunde 5-lobatus, extra tenuiter pubescens, intra glaber ;

lobi ovato-lanceolati, 5 mm. longi, 2 mm. lati. *Petala* angusta, laciniata, utrinque glabra. *Stamina* circiter 20. *Ovarium* 2–3-loculare, glabrum.
Tropical Africa. Nyasaland: Mount Malosa, near Zomba, 1300–1950 m., Nov. and Dec. 1896, *Whyte* (type). Tanganyika Territory: Mount Mfimbwa, between L. Tanganyika and L. Nyasa, 2300 m., March 1909, *Fromm* 232 and 230.

22. **Cassipourea Eickii** *Alston* comb. nov. *Weihea Eickii* Engl. in Engl. Bot. Jahrb. 40 : 50, t. 1C (1907).

Arbor vel frutex; ramuli glabri, hornotini flavo-virides, annotini atropurpurei. *Folia* obovata, basi longe cuneata, apice rotundata vix et obtuse acuminata, 4–6 cm. longa, 2–2·7 cm. lata, margine serrata, coriacea, glabra; nervi laterales inter costam et marginem conjuncti et multe ramosi, nervis tertiariis subtus conspicuis numerosis reticulatis; petioli usque ad 8 mm. longi, in siccitate flavi, glabri; stipulae cicatricibus conspicuis, ovatae, subglabrae, subtriangulares, 2·5 mm. longae. *Flores* 1–3; pedicelli usque ad 2 mm. longi, apice articulati, pilosi. *Calyx* profunde 4–5-lobatus, extra tenuiter pubescens, intra glaber. *Stamina* circiter 15. *Ovarium* 3–4-loculare glabrum. *Fructus* ovoideus calycis lobos reflexos persistentes subtendens.
Tropical Africa. Tanganyika Territory: Usambara, steppes near Kwai, 1600 m., *Eick* 137 (type); *Albers* 198; tall forest tree, *Albers* 19.
Vernacular names: Mhando, Nekarito.

23. **Cassipourea huillensis** *Alston* comb. nov. *Weihea huillensis* Engl. in Engl. Bot. Jahrb. 40 : 51, t.1B (1907).

Arbor ?; ramuli juventute pilosi, cinereo-brunnei. *Folia* lanceolata vel lanceolato-oblonga, basi plerumque breviter cuneata, apice obtuse et vix acuminata, 4–7 cm. longa, 1·5–2 cm. lata, dentata, glabra; nervi laterales prope marginem conjuncti, nervis tertiariis paucis reticulatis; petioli 3 mm. longi, vix pilosi. *Flores* 1–3, in alabastris sessiles. *Calyx* profunde 5-lobatus, extra dense pilosus, intra glaber. *Petala* fimbriata. *Stamina* circiter 20. *Ovarium* 3-loculare, 6-sulcatum, glabrum.
Tropical Africa. Angola: Benguella, Huilla, *Autunes* 59 (type).

24. **Cassipourea congoensis** *R. Br. ex DC.* Prod. 3 : 34 (1828), *Legnotis sp.* R. Brown, Botany of the Congo : 18 (1818). *Cassipourea africana* Benth. in Hook. Niger Fl. 341 (1849). *Anstrutheria africana* Benth. Journ. Linn. Soc. 3 : 78 (1859). *Weihea africana* Benth. ex Oliv. Fl. Trop. Afr. 2 : 410 (1871). *Richea africana* O. Kuntze Rev. Gen. 235 (1891). *Weihea Warneckei* Engl. in Engl. Bot. Jahrb. 40 : 52, t.2B (1907). *W. ovalifolia* v. Brehmer in Engl. Bot. Jahrb. 54 : 366 (1917). W. *guineensis* v. Brehmer l.c. : 367. *W. lagdoensis* Engl. in Engl. Bot. Jahrb. 54 : 367 (1917).

Frutex vel arbor parva ; ramuli brunnei, juventute virides et pilosi. *Folia* elliptica ad oblonga, basi cuneata vel rotundata, apice rotundata vel vix acuminata, 4–9 cm. longa, 2–5·5 cm. lata, glabra vel costa pilosa, subcoriacea, supra plerumque glauca, integra vel serrata ; nervi laterales prope marginem conjuncti, nervis tertiariis reticulatis ; petioli 2·5 mm. longi ; stipulae caducae vel subpersistentes, ovatae, extra pilosae, 5 mm. longae. *Flores* 1–4 ; pedicelli 2–4 mm. longi, pilosi, prope apicem articulati ; bracteae 1·5 mm. longae. *Calyx* profunde 5-lobatus, rariter 4-lobatus, extra dense pilosus, intra glaber ; lobi 3 mm. longi, lanceolati. *Petala* 5 mm. longa, angusta, apice laciniata, glabra. *Stamina* 15–20, in annulo carnoso inserta. *Ovarium* glabrum, triloculare. *Capsula* depresso-globosa.

Tropical Africa. Senegal : M'Bidjem, *Thierry* 25. Sierra Leone : *Afzelius*. French Guinea : by the Niger at Farana, Mar. 1892, *Scott Elliot* 5369. Togo : bush steppes near Lome, March 1900, *Warnecke* 99. N. Nigeria : Quorra, Sept. 1841, *Vogel* 206 ; banks of Gurara R., May 1907, *W. R. Elliott* 176 ; Nupe, *Barter* 1670 ; Abinsi, shrub in ravines, half scrambling, Apr. 1912, *Dalziel* 634. S. Nigeria : Oloke Meji, *Foster* 281 ; Lagos, March 1906, *Foster* 53. Cameroons : Lagdo Mountains, among granite boulders, 300 m., *Ledermann* 4395, 4401 ; Bitye, River Ja, 1920, *G. L. Bates*. Belgian Congo : near Yumbi, *Bequaert* ; Aug. 1914, *Nannan* 79 ; *Chr. Smith* (type) (not seen). Rather a variable species with a wide distribution.

25. **Cassipourea Elliottii** *Alston* comb. nov. *Weihea Elliottii* Engl. in Engl. Bot. Jahrb. 40 : 52, t. 1A (1907).

Arbor alta caule nudo ; ramuli juventute pilosi, atrobrunnei. *Folia* elliptica, basi rotundata vel subcuneata, apice obtusa, 3–3·5 cm. longa, 1·5–2·25 cm. lata, dentata, coriacea, glabra ; nervi laterales e margine circiter 4 mm. conjuncti,ner viis tertiariis numerosis reticulatis ; petioli 3 mm. longi ; stipulae caducae, oblongae, extra pilosae, 5 mm. longae. *Flores* 1–3 ; pedicelli 3–5 mm. longi, pubescentes, apice articulati ; bracteae basi 2·5 mm. longae. *Calyx* profunde 5–lobatus, rariter 4–lobatus, extra dense appresse pilosus, intra glaber ; lobi lanceolati, 4·5 mm. longi. Petala angusta, apice fimbriata, glabra. *Stamina* 20. *Ovarium* apice dense sericeo-villosum, triloculare. *Fructus* ovoideus, subglaber.

Tropical Africa. Kenya Colony : Mosigi, above Nairobi, *C. F. Elliott* 145 (type) ; grassland, Limoru, Kisumu, Nairobi, 2250 m., Feb. 1915, *Dummer* 1657 ; without exact locality, *C. F. Elliott* 246 and *Hutchins* ; escarpment, 2000–2600 m., *Battiscombe* 100. Tanganyika Territory : southern slopes of Meru Mountain, 1600–2300 m., *Bancroft* 48.

Vernacular names : Muzaizi (*Battiscombe*), Fuzare (*Bancroft*).

Hutchins says of Muzaizi, " In view of its abundance and wide distribution, this timber may be held to rank third in technical importance amongst the timbers of Kenya Forest. . . . . It

has a wide distribution from the forests lying at a comparatively low elevation around Nairobi to the highest portion of the bamboo forests visited by me on the slopes of Kenya at 9000 ft."

26. **Cassipourea mossambicensis** *Alston* comb. nov. *Weihea mossambicensis* v. Brehmer in Engl. Bot. Jahrb. 54 : 361 (1917).

Frutex parvus ; ramuli brunneo-cinerei. *Folia* obovato-oblonga, basi rotundata vel subcuneata, apice leviter et obtuse acuminata, 4·5–5·5 cm. longa, 2·5–3·25 cm. lata, integra vel paulo spinoso-dentata, margine leviter recurvata, coriacea, supra glabra sicca nitentia, infra parcissime pilosa ; nervi laterales prope marginem conjuncti, nervis tertiariis reticulatis, utrinque conspicuis ; petioli 4 mm. longi, pilosi ; stipulae subcordatae, extra pilosae, intra glabrae, 3 mm. longae. *Flores* 1–3 ; pedicelli 3 mm. longi, apice articulati, pilosi ; bracteae 2 mm. longae. *Calyx* profunde 5-lobatus, extra tenuiter appresse pilosus, intra glaber ; lobi lanceolati, 3 mm. longi. *Petala* flava (*Johnson*). *Stamina* circiter 15, glabra. *Ovarium* triloculare, glabrum, sed apice ciliis perpaucis instructum.
Tropical Africa. Port. E. Africa : coastal region Chidôro Mayanda, 200 m., Mossanzi, Feb., *Johnson* 104 (type) ; Lourenço Marques, Dec. 1897, *Schlechter* 11656.

27. **Cassipourea obovata** *Alston* sp. nov.

Arbor 6 m. alta ; ramuli cinerei, subrobusti, juventute pilosi. *Folia* obovata, basi cuneata, apice vix acuminata sed prominenter emarginata, 3–4 cm. longa, 1·75–3 cm. lata, integra margine recurvato, coriacea, glabra, juventute costa pilosa, lamina rariter sparse pilosa ; nervi laterales prope marginem conjuncti, nervis tertiariis reticulatis ; petioli 3 mm. longi ; stipulae rotundatae, glabrae, 3 mm. longae, 3 mm. latae. *Flores* numerosi, ad nodos dense fasciculati ; pedicelli 2 mm. longi, apice articulati, pilosi ; bracteae parvae. *Calyx* profunde 5–6–lobatus, extra pilosus, intra glaber ; lobi circiter 5 mm. longi, 1·5 mm. lati, lanceolati. *Petala* calyce duplo longiora, fimbriata, glabra. *Stamina* in disco carnoso inserta calyce aequantia. *Ovarium* 4–loculare, apice pilosum ; stylus glaber, apice in stigmate incrassatus.
Tropical Africa. Port. E. Africa : sandy hills, near mouth of Msalu River, Dec. 1911, *Allen* 89 (type).
Fruit edible.
Vernacular name : Namabordo (*Allen*).

28. **Cassipourea trichosticha** *Alston* sp. nov. *Weihea africana* Thonner, Flowering Plants of Africa, t. 112, non Benth.

Frutex gracilis circiter 2·5 m. altus ; ramuli atro-brunnei, juventute pilosi. *Folia* elliptica, basi abrupte cuneata, apice leviter et obtuse acuminata, 5–8 cm. longa, 3–4·5 cm. lata, margine profunde serrata, subcoriacea, utrinque glabra ; nervi laterales prope marginem conjuncti nervis tertiariis reticulatis ;

petioli 5–8 mm. longi, juventute pilosi demum glabri ; stipulae ovatae, pilosae, apice obtusae, 3·5 mm. longae. *Flores* 1–4-nati ; pedicelli pilosi, 4·5 mm. longi, apicem versus articulati ; bracteae minutae. *Calyx* profunde 5–lobatus, extra leviter pilosus, intra glaber ; lobi lanceolati, 3·5 mm. longi. *Petala* spatulata, laciniata, calyce paulo longiora. *Stamina* 20–25. *Ovarium* triloculare, trisulcatum, sulcis pilosis exceptis glabrum ; stylus glaber, apice stigmate obscuro trilobo coronatus.
Tropical Africa. Angola : Ambriz, Nov. 1872, *Monteiro* (type).

29. **Cassipourea glomerata** *Alston* sp. nov.
Frutex ; ramuli teretes, atrobrunnei, glabri, lenticellis albidis conspicuis induti. *Folia* opposita, elliptica, basi cuneata, apice obtuse acuminata, 15–17·5 cm. longa, 5·5–6·5 cm. lata, leviter sinuato-dentata, glabra ; nervi laterales prope marginem conjuncti et multe ramosi, nervis tertiariis numerosis reticulatis ; petioli 7·5 mm. longi, glabri. *Flores* dense glomerati, sessiles ; bracteae 2 mm. longae. *Calyx* profunde 4–lobatus, extra pilosus, intra glaber ; lobi 4 mm. longi, fere 2 mm. lati. *Petala* angusta, apice laciniata. *Stamina* 16 in disco annulato inserta. *Ovarium* subglobosum dense pilosum ; stylus circiter 1·5 mm. longus, apice trilobo incrassato.
Tropical Africa. St. Thomas Island : south-west part of the island, *Chevalier* 14271 (type).

30. **Cassipourea Mildbraedii** *Alston* comb. nov. *Weihea Mildbraedii* Engl. in Mildbraed Wiss. Ergeb. der Deutsch. Z.–Afr. Ex. 1907–8, 2 : 578 (1913) ; Engl. Bot. Jahrb. 54 : 363 (1917).
Frutex ; ramuli hornotini flavo-tomentosi, annotini atro-purpurei, pilosi, demum glabrescentes. *Folia* elliptica, basi leviter cuneata, apice longe acuminata, 13 cm. longa, 4–6 cm. lata, distincte profunde dentata, glabra nervis hirsutis exceptis ; nervi laterales prope marginem conjuncti, nervis tertiariis reticulatis ; petioli 8 mm. longi, pilosi ; stipulae ovatae, extra pilosae, 6·5 mm. longae. *Flores* numerosi, dense glomerati, sessiles. *Calyx* profunde 4–lobatus, extra dense pilosus, intra subglaber ; lobi 4 mm. longi, ovato-lanceolati. *Petala* alba, angusta, profunde laciniata. *Stamina* circiter 20. *Ovarium* 3–loculare, dense albo-sericeum.
Tropical Africa. Belgian Congo : Fort Beni, Kwa Muera, in the undergrowth of the primeval forest, Jan. 1908, *Mildbraed* 2374 (type).

31. **Cassipourea mawambensis** *Alston* comb. nov. *Weihea mawambensis* Engl. in Mildbraed Wiss. Ergeb. der Deutsch. Z.-Afr. Ex. 1907–8, 2 : 579 (1913) ; Engl. Bot. Jahrb. 54 : 365 (1917).
Frutex 1·5–3 m. altus ; ramuli juventute pilosi, demum glabrescentes, brunnei. *Folia* elongato-oblonga vel sublanceolata, basi plerumque longe cuneata, apice longe acuminata, 12–17 cm. longa, 4–4·5 cm. lata, sinuato-dentata, glabra, costa

subtus pilosa excepta ; nervi laterales prope marginem conjuncti, nervis tertiariis numerosis reticulatis ; petioli 6 mm. longi, pilosi ; stipulae extra pilosae, intra glabrae, ovato-lanceolatae, apice recurvatae. *Flores* 1–3 ; pedicelli pilosi, 3 mm. longi, apice articulati. *Calyx* profunde 4–lobatus, extra dense villosus, intra subglaber ; lobi 4·5 mm. longi, 2 mm. lati, longe triangulares. *Petala* alba, angusta, apice laciniata. *Stamina* circiter 20. *Ovarium* siccitate nigrum, 3–loculare, pilosus. *Fructus* ovoideo-conicus, longe pilosus.

Tropical Africa. Belgian Congo : Irumu-Mawambi, in the high forest, March, *Mildbraed* 2898 (type).

32. **Cassipourea ruwensorensis** *Alston* comb. nov. *Weihea ruwensorensis* Engl. in Mildbraed Wiss. Ergeb. der Deutsch. Z.–Afr. Ex. 1907–8, 2 : 579 (1913) ; Engl. Bot. Jahrb. 54 : 364 (1917).

Frutex vel arbuscula ; ramuli juventute pubescentes. *Folia* lanceolata vel ovato-elliptica, basi cuneata, apice acuminata, 6–10 cm. longa, 2·5–6 cm. lata, serrata vel sinuato-dentata, supra glabra, subtus nervis pilosis ; nervi laterales arcuati, plerumque prope marginem conjuncti, nervis tertiariis reticulatis; petioli 5 mm. longi, pilosi ; stipulae 1 cm. longae, extra dense pilosae. *Flores* complures vel perpauci ; pedicelli pilosi, 3 mm. longi, apice articulati. *Calyx* profunde 4–lobatus, extra dense pilosus, intra glaber ; lobi circiter 5 mm. longi, 2 mm. lati. lanceolati. *Petala* flavida (*Dummer*). *Stamina* circiter 20. *Ovarium* 3–4 loculare, subglobosum, longe pilosum. *Fructus* ovoideus, verrucosus et tomentellus et longissime pilosus, siccitate flavus.

Tropical Africa. Belgian Congo : West Ruwenzori, Butagu valley in mountain woods, 2500 m., *Mildbraed* 2515 (type); Fort Beni, Kwa Muera, in the undergrowth of the primeval forest, Jan. 1908, *Mildbraed* 2245. Uganda : copse, elephant grass land near Nagoye, 1200 m., July, Aug. 1916, *Dummer* 2969 and 3022 ; S. Buddu, *Fyffe* 174 ; New Bajo, Nabugulo forest, 1200 m., June 1915, *Dummer* 2729 ; Mabira Forest, Mulange, 1200 m., Apl. 1920, *Dummer* 4408, *Fyffe* 698 ; Minzera, *Fyffe* 42 ; Nambiginwa Forest, Entebbe, 1200 m., *Maitland* 598.

Subgenus 2. Lasiosepalum Alston.

(Sect. *Cassipoureopsis* Engl., sub *Weihea*).

33. **Cassipourea sericea** *Alston* comb. nov. *Dactylopetalum sericeum* Engl. in Engl. Bot. Jahrb. 40 : 55, t. 2A (1907). *Weihea sericea* Engl. l. c. 54 : 363 (1917).

Frutex 3 m. altus ; ramuli graciles, juventute pilosi. *Folia* elliptica, basi subcuneata, apice abrupte et longe acuminata 17–23 cm. longa, 5·5–8·5 cm. lata, integra vel apicem versus eviter undulato-denticulata, glabra, nervis hirsutis exceptis ;

nervi laterales leviter arcuati, nervis tertiariis numerosis reticulatis vel prope marginem subparallelis ; petioli 1 cm. longi, pilosi ; stipulae lanceolatae, extra appresse pilosae, 9 mm. longae. *Flores* solitarii ; pedicelli 1–1·5 cm. longi, apice articulati ; bracteae parvae. *Calyx* profunde 5–lobatus, extra leviter pilosus, intra dense appresse albo-sericeus ; lobi ovato-lanceolati, 6 mm. longi, 2·5 mm. lati. *Stamina* 20, extra discum annulatum breviter dentatum inserta, 3·5 mm. longa ; antherae 1–2 mm. longae, pubescentes. *Ovarium* triloculare, flavo-villosum.

Tropical Africa. Gabon : Sibange-Farm, Munda district, Nov. 1881, *Soyaux* 318 (type).

34. **Cassipourea schizocalyx** *C. H. Wright* in Kew Bull. 1901 : 122.

Arbor parva ; ramuli annotini brunnei, glabri, hornotini cinerei, parce appresse pilosi. *Folia* elliptica, basi breviter cuneata, apice abrupte et obtuse acuminata, 9–14 cm. longa, 5–7 cm. lata, integra, glabra nervis hirsutis exceptis ; nervi laterales arcuati, nervis tertiariis numerosis subparallelis ; petioli 1 cm. longi appresse pilosi ; stipulae ovato-lanceolatae 1 cm. longae, appresse pilosae, per anthesin subpersistentes. *Flores* 1–3 ; pedicelli petiolis duplo longiores, apice articulati, appresse pubescentes ; bracteae parvae. *Calyx* profunde 5–lobatus, 7 mm. longus, extra tenuiter pubescens, intra sericeo-villosus ; lobi triangulari-ovati. *Petala* alba, ambitu obovata, laciniata, breviter pubescentia. *Stamina* 30–35, extra disco annulato denticulato inserta, 2 mm. longa ; antherae pubescentes. *Ovarium* triloculare, dense sericeum.

Tropical Africa. Gabon : in the forest at Mfoa, 86 miles east of Gabon river, Sept. 1896, *Bates* 514 (type).

35. **Cassipourea kamerunensis** *Alston* comb. nov. *Dactylopetalum kamerunense* Engl. in Engl. Bot. Jahrb. 40 : 55, fig. 1E (1907). *Weihea kamerunensis* Engl. l. c. 54 : 363 (1917).

Arbor 15–20 m., alta ; ramuli glabri, juventute breviter pilosi. *Folia* elliptico-oblonga, basi cuneata, apice subacuminata acuta, 10–14 cm. longa, 3–4·5 cm. lata, integra, glabra, costa hirsuta excepta ; nervi laterales arcuati, nervis tertiariis numerosis subparallelis ; petioli 1 cm. longi ; stipulae tarde caducae, oblongo-lanceolatae, 8–14 mm. longae, 3 mm. latae, appresse pilosae. *Flores* solitarii ; pedicelli graciles pilosi, 1·5 cm. longi, apice articulati ; bracteae parvae. *Calyx* profunde 5-lobatus ; lobi fere 5 mm. longi, ovato-triangulares, extra tenuiter pubescentes, intra dense sericeo-tomentosi. *Petala* spatulata, longe multifimbriata. *Stamina* circiter 25, in disco annulato non denticulato inserta, 2·5 mm. longa ; antherae pubescentes. *Ovarium* triloculare, villosum.

Tropical Africa. Cameroons : in the primeval forest region at Nkuambe near Bipinde, May 1904, *Zenker* 3059 (type) ; Bipinde, primeval forest region, *Zenker* 3118.

Subgenus 3. Cassipourea (Aubl. pro gen.).

(incl. Sect. *Dysweihea* Engl., sub *Weihea*.)

36. **Cassipourea Afzelii** *Alston* comb. nov. *Weihea Afzelii* Oliver Fl. Trop. Afr. 2 : 411 (1871). *Richea Afzelia* O. Kuntze Rev. Gen. 235 (1891). *Cassipourea caesia* Stapf in Journ. Linn. Soc. 37 : 97 (1905).

Frutex ; ramuli plerumque atrorubri glabri, juventute virides, pilosi. *Folia* elliptica, basi cuneata, apice acuminata 9–13·5 cm. longa, 4·25–5·25 cm. lata, integra vel leviter sinuata, plerumque glauca, glabra ; nervi laterales prope marginem conjuncti, nervis tertiariis reticulatis ; petioli 8 mm. longi ; stipulae lanceolatae, extra leviter pilosae, 4 mm. longae. *Flores* solitarii vel complures ; pedicelli 2·5 mm. longi, apice articulati, glabri ; bracteae minutae. *Calyx* campanulatus, ad medium 5–lobatus, extra glaber, intra dense sericeo-villosus ; lobi ovato-triangulares, subacuti, circiter 2 mm. longi. *Petala* exserta, spatulata, laciniata, pilosa. *Stamina* 10–15 in disco denticulato piloso inserta. *Ovarium* 3-loculare, sericeo-villosum.

Tropical Africa. Sierra Leone : *Afzelius* (type) ; Jan. 1908, *Smythe* 232 ; Colonial Reserve, Jan. 1922, *King-Church* 3. Liberia : within 20 miles of Karkatown, 1904, *Whyte*.

Bark used for medicine.

Vernacular name : Tembwe (Mendi, *King-Church*).

37. **Cassipourea parvifolia** *Stapf* in Journ. Linn. Soc. Bot. 37 : 97 (1905). *Dactylopetalum parvifolium* Scott Elliot in Journ. Linn. Soc., Bot. 30 : 78 (1894).

Arbor ? ; ramuli graciles purpurascentes, juventute sparse appresse pubescentes. *Folia* elliptica, basi cuneata, apice obtuse acuminata, 4·5–8 cm. longa, 2–3·5 cm. lata, integra vel undulato-denticulata ; nervi laterales prope marginem conjuncti, nervis tertiariis reticulatis ; petioli 3 mm. longi, glabri ; stipulae lanceolatae, 4 mm. longae. *Flores* solitarii ; pedicelli usque ad 1 mm. longi, glabri, apice articulati ; bracteae minutissimae. *Calyx* campanulatus, ad medium 5-lobatus, usque ad 3 mm. longus, extra glaber, intra sericeo-villosus ; lobi triangulares, acuti, circiter 2 mm. longi. *Petala* laciniata, tomentosa. *Stamina* 15, extra discum annulatum pubescens inserta. *Ovarium* 2–3-loculare, hirsutum.

Tropical Africa. Sierra Leone : near Kambia, Scarcies R. mouth, Jan. 1892, *Scott Elliot* 4735 (type). Liberia : within 6 miles of Monrovia, *Whyte*.

38. **Cassipourea eketensis** *Baker fil.* in Journ. Bot. 52 : 3 (1914).

Arbor ? ; ramuli glabri, gracillimi. *Folia* ovata, elliptica vel lanceolata, basi cuneata, apice breviter acuminata, 4·5–6 cm. longa, 2–2·5 cm. lata, integra, glabra ; nervi laterales inter costam et marginem conjuncti, nervis tertiariis inconspicuis ; petioli 4 mm. longi, graciles ; stipulae extra leviter pilosae,

4 mm. longae, lanceolatae. *Flores* complures, subsessiles, pedicellis usque ad 1·5 mm. longis. *Calyx* campanulatus, ad medium 5-lobatus, extra glaber, intra dense sericeo-pubescens, fere 3 mm. longus, lobis subtriangularibus acutis. *Petala* profunde laciniata, dense villosa. *Stamina* numerosa, extra discum cupulatum inserta. *Ovarium* triloculare, pilosum.
TROPICAL AFRICA. S. Nigeria: Eket district, *Talbot* 3213 (type), 3214.

39. **Cassipourea plumosa** *Alston* comb. nov. *Weihea plumosa* Oliver Fl. Trop. Afr. 2: 411 (1871). *Richea plumosa* O. Kuntze Rev. Gen. 235 (1891).

Arbor 10 m. alta; ramuli glabri, annotini cinerei, hornotini flavo-cinerei, graciles. *Folia* elliptica, basi breviter cuneata, apice abrupte et longe et obtuse acuminata, 7·5–10·5 cm. longa, 2·5–4·5 cm. lata, integra, glabra; nervi laterales inter costam et marginem conjuncti, nervis tertiariis inconspicuis; petioli 5 mm. longi; stipulae lanceolatae, extra dense pilosae, 5 cm. longae. *Flores* 1–5, sessiles vel subsessiles; bracteae minutissimae. *Calyx* campanulatus, ad medium 4–lobatus, extra glaber, intra dense flavo-canescens, fere 4 mm. longus; lobi triangulares, acuti, 2·5 mm. longi. *Petala* exserta, spatulata, laciniata, villosa. *Stamina* circiter 30. *Ovarium* 2–loculare, dense appresse hirsutum.
TROPICAL AFRICA. Gabon: R. Kongui, Lat. 1° N., Sept. 1862, *Mann* 1818 (type).

40. **Cassipourea latifolia** *Alston* sp. nov.

Arbor ?; ramuli glabri, hornotini glauci, lenticellis atro-rubris, annotini brunnei. *Folia* late elliptica, basi cuneata, apice subacuta, acuminata, coriacea, glabra, glauca, 11–13 cm. longa, 5–7 cm. lata, integra vel distante et minute serrata, utrinque prominente reticulata; nervi laterales intra marginem multe ramosi et conjuncti, nervis tertiariis reticulatis; petioli 5 mm. longi; stipulae circiter 3 mm. longae. *Flores* 1–3, vix pedicellati; bracteae minutae. *Calyx* campanulatus, ad medium 5–lobatus, 5 mm. longus, extra glaber, intra dense sericeo-pilosus; lobi triangulares, subacuti. *Petala* carnea, late spatulata, laciniata, dense albo-pilosa, calyce duplo longiora. *Stamina* circiter 15, extra discum tubulatum leviter undulatum basi vix conniventia inserta. *Ovarium* triloculare, dense sericeo-villosum, stylo staminibus aequante villoso.
WEST INDIES. Trinidad: Botanic Garden Herbarium, Feb. 1900, *Hart* 6743 (type).

41. **Cassipourea subsessilis** *Britton* in Bull. Torr. Bot. Club 35: 340 (1908) & Contrib. N.Y. Bot. Gard. 108: 340 (1908).

Arbor 6 m. alta; rami diffusi; ramuli brunnei, glabri. *Folia* elliptica, basi rotundata, apice leviter et obtuse acuminata, 3·5–6 cm. longa, 2–3 cm. lata, integra, coriacea, glabra; nervi laterales prope marginem conjuncti, nervis tertiariis reticulatis;

petioli 4–6 mm. longi. *Flores* solitarii, sessiles vel subsessiles; bracteae minutissimae. *Calyx* campanulatus, ad medium 5-lobatus, extra glaber, intra dense sericeo-pilosus, usque ad 6 mm. longus; lobi ovato-triangulares, acuti, fere 3 mm. longi. *Petala* spatulata, laciniata, dorso leviter pilosa vel glabra. *Stamina* circiter 20, extra discum tubulatum undulatum inserta. *Ovarium* dense appresse pubescens.

West Indies. Jamaica: on wooded hill N.E. of Dolphin Head, parish of Hanover, March 1908, *Harris* 10307 (co-type); *Britton* 2316 (co-type) (not seen).

42. **Cassipourea subcordata** *Britt.* in Bull. Torr. Bot. Club 35: 340 (1908) & Contrib. N.Y. Bot. Gard. 108: 340 (1908).

Arbor 4 m. alta; rami ascendentes; ramuli purpurei, maturi cinereo-brunnei. *Folia* ovata, basi subcordata, apice vix acuminata, integra vix nitentia, 5–7 cm. longa, 2·5–3·5 cm. lata, glabra; nervi laterales prope marginem conjuncti, nervis tertiariis numerosis reticulatis; stipulae circiter 5 mm. longae, 2 mm. latae. *Flores* 1–2, subsessiles. *Calyx* ad medium 4–5 lobatus, extra glaber, intra dense sericeo-pilosus, usque ad 5 mm. longus. *Petala* alba, fimbriata, glabra. *Stamina* circiter 20, extra discum tubulatum inserta. *Ovarium* pilosum.

West Indies. Jamaica: Troy, along a brook, *Britton* 488 (type) not seen; same locality, Sept, 1906, *Harris* 9466.

43. **Cassipourea elliptica** *Poir.* Dict. Suppl. 2: 131 (1811). Hook. Ic. 3, t. 280; Schnizl. Ic. 4, t. 263. *Legnotis elliptica* Swartz Prod. 84 (1788), & Fl. Ind. Occ. 969, t. 17 (1800). *Cassipourea alba* Griseb. in Goelt. Abh. 7: 75 (1857). *C. elliptica* var. *ovata* Griseb. *C. elliptica* β. *alba* Griseb. Fl. of B.W. Indies: 274 (1860). *C. elliptica* γ. *pauciserrata* Griseb. Fl. of B.W. Indies 274 (1860). *C. cubensis* Urban. Symb. Antill. 7: 293 (1912).

Frutex vel *arbor* usque ad 9 m. alta; ramuli brunnei, glabri. *Folia* elliptica, basi cuneata vel rotundata, apice obtusa vel acuta, acuminata, 4–10·5 cm. longa, 2–4·75 cm. lata, integra vel distante serrata, glabra coriacea, nitida; nervi laterales prope marginem conjuncti, nervis tertiariis reticulatis subtus prominentibus supra vix prominentibus; petioli 2–4 mm. longi, glabri; stipulae caducae vel subpersistentes, 4 mm. longae, 1·5 mm. latae, extra appresse pilosae. *Flores* numerosi vel subsolitarii; pedicelli 2–5 mm. longi, apice articulati, glabri; bracteae minutae. *Calyx* campanulatus, fere ad medium 4–5-lobatus, extus glaber, intra dense sericeo-villosus, usque ad 5 mm. longus; lobi triangulares, circiter 2 mm. longi. *Petala* 4–5, carnea vel alba, late spatulata, laciniata, dense albo-pilosa. *Stamina* 12–30; extra discum tubulatum inserta sed basi leviter conniventia. *Ovarium* triloculare appresse pilosum. *Fructus* oblongus, sparse pilosus.

West Indies. Jamaica: without exact locality, *Swartz* (type); Kempshot, 500 m., March 1908, *Harris* 10330; rocky

woods interior of St. Anns, Dec. 1843, *Purdie*; Fray Woods, 540–590 m., March 1908, *Harris* 10340; without exact locality, *Forster*; Upper Clarendon, Kellits, 650 m., Sept. 1912, *Harris* 11158. Cuba: *Wright* 2568. Porto Rico: *Heller* 278; La Estanoita near Rio Grande, on the banks of stream, March 1883, *Eggers* 1227; same locality, Apr. 1883, *Eggers* 1227; Sierra de las Piedras, in woods, Nov. 1884, *Sintenis* 5352; Sierra de Yaburva, Mount Cerro Gordo, Sept. 1885, *Sintenis* 2567; Sierra de Lares, woods, *Sintenis* 6233; Taburoa, in woods, Sept. 1886, *Sintenis* 4984; without exact locality, 1827, *Wydler* 206. Dominica: *Imray* 149, 292; Sept. 1882, *Eggers* 1074; La Plaine, in forest, Jan. 1889, *Rammage*. Martinique: near Casa Pilote, in forest, July 1870, *Hahn* 1294. St. Lucia: Aux Galet, dry region near sea, Apr. 1887, *Rammage*. St. Vincent: *Anderson*; 1500 ft., July 1889, *Smith* 1729. Grenada: roadside near Grand Etang Rest House, Apr. 1895, *Broadway* 467. Tobago: near Easterfield, "The Widow," July 1910, *Broadway* 3841.

Central America. Honduras: without locality, *R. Shakespear*. Panama: Colon, in swamp, June 1861, *Hayes* 160, 161; southern Darien, near La Palma, 0–50 m., Jan. 1912, *Pittier* 5483; Chagres, March 1850, *Fendler* 191; eastern Chiriqui, vicinity of San Felix, 0–120 m., Sept. 1912, *Pittier* 5741; Coiba Island, in woods, May 1847, *Seemann* 633.

Vernacular names. Dominica: Tiatron (also used for quite a different tree, *Rammage*). Porto Rico: Palo de Gonzoli (*Eggers*).

44. **Cassipourea obtusa** *Urb.* Symb. Antill. 7: 293 (1912).

Arbor; ramuli cinerei, glabri. *Folia* elliptica vel elliptico-oblonga, basi cuneata, apice rotundata obtusa, 6–8 cm. longa, 3–3·5 cm. lata, integra, glabra; nervi laterales prope marginem conjuncti, nervis tertiariis reticulatis; petioli 4 mm. longi; stipulae subtriangulares. *Flores* plures, fasciculati; pedicelli glabri, 2 mm. longi, medio articulati; bracteae parvae. *Calyx* campanulatus, ad medium 4-lobatus, extra glaber, intra dense sericeo-pilosus, circiter 5 mm. longus, lobis subtriangularibus acutis circiter 2 mm. longis. *Petala* alba, laciniata, dense pilosa. *Stamina* circiter 12, extra discum annulatum inserta. *Ovarium* 3-loculare, dense et breviter pilosum.

West Indies. Santo Domingo: near Barahona, April, *Fuertes* 839 (type).

45. **Cassipourea peruviana** *Alston* sp. nov. *C. elliptica* Engl. in Mart. Fl. Bras. 12: 2: 430 (1876) in parte, non Poir.

Arbor 8 m. alta; ramuli graciles, brunnei, juventute virides appresse pilosi. *Folia* lanceolata, basi breviter cuneata, apice obtusa, sensim acuminata, 13–16 cm. longa, 4·2–5·5 cm. lata, integra, glabra vel costa juventute pilosa, viridia sed subtus sicca frequenter brunnea; nervi laterales prope marginem conjuncti, nervis tertiariis numerosis reticulatis; petioli 5–8 mm.

longi, glabri ; stipulae lanceolato-ovatae, 5 mm. longae, extra appresse pilosae. *Flores* 1–4 ; pedicelli circiter 6 mm. longi, apice articulati, parce et breviter pilosi ; bracteae minutae. *Calyx* late campanulatus fere ad medium 5-lobatus, extra glaber vel ciliis perpaucis appressis, intra dense sericeo-villosus, usque ad 5 mm. longus ; lobi triangulares, 2 mm. longi. *Petala* alba, spatulata laciniata, dense albo-pilosa, calyce duplo longiora. *Stamina* circiter 20, calyce longiora, extra discum tubulatum leviter undulatum et eum vix conniventia inserta. *Ovarium* triloculare, dense appresse pilosum ; stylus dense sericeo-pilosus, apice vix incrassatus.

Tropical South America. Peru : in the mountains along the river Mayo, near Tarapoto, *Spruce* 4005 (type).
Probably *C. elliptica* var. *dentata* of Fl. Bras. is this species ; in woods near Yurimaguas, *Poeppig* 2088, 2234 (not seen).

46. **Cassipourea lasiocalyx** *Alston* sp. nov.

Arbor ; ramuli hornotini cinerei, lenticellis rubris, sulcati, pilosi, annotini brunnei, striati, plerumque glabri. *Folia* lanceolata vel oblongo-elliptica, basi breviter cuneata vel subrotundata, apice obtusa, acuminata, 10·5–12·5 cm. longa, 3·5–5 cm. lata, sparse dentata vel integra, subcoriacea, supra glauca, glabra, subtus sparse appresse pilosa, costa dense pilosa ; nervi laterales inter costam et marginem conjuncti, nervis tertiariis paucis reticulatis ; petioli 6 mm. longi, dense pilosi ; stipulae ovatae, 5–12 mm. longae, 4–7 mm. latae, caducae vel subpersistentes, appresse pilosae. *Flores* 1–8, sessiles ; bracteae circiter 2 mm. longae. *Calyx* campanulatus, fere ad medium 5-lobatus, intra dense sericeo-villosus, extra dense et longe pilosus, circiter 4 mm. longus ; lobi triangulares, anthesi recurvati. *Petala* calyce longiora, spatulata, laciniata, albo-pilosa. *Stamina* circiter 20, calycis tubo fere duplo longiora, extra discum brevem inserta. *Ovarium* triloculare, dense et longe sericeo-villosum ; stylus dense pilosus.

Tropical South America. British Guiana : Upper Demerara River, Sept. 1887, *Jenman* 4051 (type) ; Cuyuni R., Portage, Devil's Hole, Oct. 1904, *Bartlett* 8160.
Vernacular name : Barediaballi (*Jenman*).
Jenman states that the whole trunk is split into laths, as small as those used by plasterers in England, by the concussion of falling. Even the stump left in the ground splits in a similar manner.

47. **Cassipourea guianensis** *Aubl.* Pl. Guian. 1 : 529, t. 211 (1775). Lam. Encycl. t. 406. Mart. Fl. Bras. 12 : 2 : t. 9. *Legnotis Cassipourea* Swartz Fl. Ind. Oc. 2 : 970 (1800). *Cassipourea macrophylla* DC. Prod. 3 : 34 (1828). *C. serrata* Benth. in Hook. Journ. 2 : 223 (1840). *C. quadrilocularis* Spruce ex Engl. in Mart. Fl. Bras. 12 : 2 : 421 (1876). *C. guianensis* var. *serrata* Engl. in Mart. Fl. Bras. 12 : 2 : 426 (1876).

Arbor parva usque ad 8 m. alta ; ramuli glabri, brunnei. *Folia* oblonga, basi rotundata vel cuneata, apice acuta, acuminata, glabra vel costa ciliis perpaucis instructa, 6–13 cm. longa, 2·5–5 cm. lata, integra vel rariter serrata, subcoriacea ; nervi laterales prope marginem conjuncti, nervis tertiariis numerosis reticulatis ; petioli 4–7 mm. longi, glabri ; stipulae lanceolatae, caducae vel subpersistentes, 4·5 mm. longae, utrinque pilosae, demum glabrae. *Flores* complures, sessiles, vel fructu pedicellis circiter 2 mm. longis dense appresse pilosis apice articulatis ; bracteae minutae. *Calyx* campanulatus, vix ad medium 4–5–lobatus, extra leviter pilosus, intra dense sericeo-villosus, circiter 5 mm. longus ; lobi triangulares, 1·5 mm. longi. *Petala* late spatulata, laciniata, dense albo-pilosa. *Stamina* circiter 20, extra discum tubulatum inserta. *Ovarium* triloculare, dense pilosum.

West Indies. Trinidad : without exact locality, *Prestoe* ; Diego Martin R., *Crueger* 212 ; Swamps near Sand de L'Est, Sept. 1849, *Crueger*.

S. America. British Guiana : without exact locality, *Schomburgk* 84 ; Lama Creek, Apr. 1889, *Jenman* 5141 ; Corentyne R., Nov. 1879, *Jenman* 335 ; Maiouria R., Nov. 1886, *Jenman* 2435 ; Bartica, Nov. 1888, *Jenman* 4780, 5017 ; Upper Demerara R., Sept. 1887, *Jenman* 4257, 4179 ; Falls of Essequibo and Aupunury, *Schomburgk* 527 ; without exact locality, *Schomburgk* 853. Surinam : *Hostmann* 1170. Cayenne ; Caux, in marsh, *Aublet* (type) not seen ; Guzone, *Poiteau* ; Karonany, *Sagot* 243 ; *Martin* ; near Godebert, *Wachenheim* ; *Van Rohr* 202 ; Maroni, *Mélinon* ; *Wachenheim* 7. Brazil : near Para, July-Aug. 1849, *Spruce* ; Rio Negro, near Barra, *Spruce* ; Barra, moist forest, March 1851, *Spruce* ; banks of Taruma R., Feb. 1855, *Spruce* ; without precise locality, *Burchell* 9317, 9673.
Vernacular names : Hitchehuballi (*Jenman*), Cibabedanni (*Jenman*).

48. **Cassipourea Spruceana** *Benth.* ex Engl. in Mart. Fl. Bras. 12 : 2 : 429 (1876).

Arbor 6–9 m. alta, habitu *Lauri nobilis* ; ramuli brunnei, glabri. *Folia* sessilia vel subsessilia, ovata, basi subcordata, acuminata, 5–7 cm. longa, 2·75–4 cm. lata, integra, glabra, viridia ; nervi laterales prope marginem conjuncti, nervis tertiariis reticulatis ; stipulae lanceolatae, leviter pilosae, 4 mm. longae. *Flores* 3–10, sessiles vel subsessiles ; bracteae minutae. *Calyx* campanulatus, fere ad medium 4–5–lobatus, extra glaber, intra dense sericeo-villosus, usque ad 3·5 mm. longus ; lobi triangulares. *Petala* alba, laciniata. *Stamina* circiter 20, extra discum tubulatum leviter dentatum et eum vix conniventia inserta. *Ovarium* triloculare, dense pilosum.

Tropical S. America. Brazil : Para State, by the Amazon R. near Santarem, May 1850, *Spruce* 873, 819 (type) not seen.

Subgenus 4. DACTYLOPETALUM (Benth. pro gen.).

(incl. Sect. *Dinklageoweihea* Engl., et Sect. *Zenkeroweihea* Engl., sub *Weihea*.)

49. **Cassipourea Zenkeri** *Alston* comb. nov. *Weihea Zenkeri* Engl. in Engl. Bot. Jahrb. 54 : 365 (1917).

Frutex 2 m. alta ; ramuli graciles, brunnei, juventute pilosi. *Folia* oblonga vel obovata, basi cuneata, apice acuminata acuta, 8–14 cm. longa, 3–6 cm. lata, integra, glabra ; nervi laterales prope marginem conjuncti, nervis tertiariis numerosis reticulatis ; petioli 6–8 mm. longi ; stipulae caducae, lanceolatae, extra appresse pilosae, 4 mm. longae. *Flores* 2–4, fasciculati ; pedicelli graciles tenuiter pilosi, 1·5 cm. longi, apice articulati ; bracteae parvae. *Calyx* campanulatus ultra medium 5–lobatus, utrinque leviter pilosus, tubo 1 mm. longo, lobis lanceolatis 2 mm. longis. *Petala* flava, spatulata, laciniata. *Stamina* 10, 3 mm. longa, extra discum dentatum inserta ; antherae pilosae. *Ovarium* biloculare, dense pilosum.
TROPICAL AFRICA. Cameroons : Bipindihof, March 1904, *Zenker* 2879 (co-type), 2912 (co-type) ; near Mimfia, in half shady forest, Oct., *Zenker* 4701 (co-type).

50. **Cassipourea Dinklagei** *Alston* comb. nov. *Dactylopetalum Dinklagei* Engl. Bot. Jahrb. 40 : 54 (1907).

Suffrutex humilis ramosissimus ; ramuli graciles, pilosotomentosi. *Folia* opposita, oblonga vel oblongo-lanceolata, basi cuneata vel subrotundata, apice acuminata et mucronata, 6·5–12·5 cm. longa, 3–4 cm. lata, integra vel distante sinuata, membranacea, supra glabra costa hirsuta excepta, subtus nervis dense hirsutis ; nervi laterales prope marginem conjuncti, nervis tertiariis reticulatis ; petioli 3·5 mm. longi, hirsuti ; stipulae caducae vel subpersistentes, lanceolatae, 5 mm. longae. *Flores* 1–3 ; pedicelli 1·5 mm. longi, apice articulati. *Calyx* campanulatus, ad medium 4–6–lobatus, lobis subtriangularibus acutis, extra appresse pilosus, intra glaber, 3 mm. longus, in fructu lobis latioribus sinibus rotundatis. *Petala* spatulata, apice laciniata. *Stamina* 10–12, vix exserta in disco tubulo inserta ; antherae ciliatae. *Ovarium* 3–loculare, dense et longe pilosum. *Fructus* oblongus, leviter pilosus.
TROPICAL AFRICA. Cameroons : near Gross-Batanga, frequent in wet forest, *Dinklage* 765 (type).

51. **Cassipourea myriocarpa** *Tul.* in Ann. Sci. Nat. Sér. iv. 8 : 162 (1857). *Weihea myriocarpa* Baill. in Adansonia 3 : 38 (1862).

Frutex ? ; ramuli glabri, lenticellis copiosis induti. *Folia* elliptico- vel obovato-oblonga, basi nonnihil cuneata, apice obtusa vel brevissime et obtuse acuminata, 4–6 cm. longa, 2–2·5 cm lata, integra, coriacea, glabra, nervis tertiariis reticulatis ; petioli brevissimi ; stipulae anguste subtriangulares. *Flores* numerosi (6–10), sessiles vel brevissime pedicellati. *Calyx*

in fructu breviter et obsolete 4-lobatus ; lobi lati, triangulari-acuti, sinubus latissimis obtusis. *Petala* fimbriata, angusta. *Stamina* calyce vix excedentia in disco membranaceo tubulato inserta. *Ovarium* 2-loculare.

Mascarene Islands. Central Madagascar : near Emirna, *Goudot* (type) not seen.

52. **Cassipourea gummiflua** *Tul.* in Ann. Sci. Nat. Sér. iv. 6 : 123 (1856). *Dactylopetalum sessiliflorum* Benth.in Journ. Linn. Soc. 3 : 79 (1858). *D. gummifluum* Baill. in Adansonia 3 : 22 (1862). *Richea gummiflua* Baill. Hist. Pl. Madag. Atlas t. 323 (1894). *Cassipourea gummifera* Ind. Kew. 2 : 1273 (sphalm) (1895).

Frutex ; ramuli atrobrunnei, glabri. *Folia* oblonga, basi rotundata vel cuneata, apice obtusa, acuminata, 9·5–10·5 cm. longa, 3·5–4·75 cm. lata, integra vel leviter dentato-sinuata, glabra ; nervi laterales prope marginem conjuncti, nervis tertiariis numerosis reticulatis ; petioli 8 mm. longi, glabri ; stipulae breves. *Flores* dense fasciculati, sessiles vel subsessiles, pedicellis articulatis. *Calyx* campanulatus, breviter 5-lobatus, utrinque glaber, circiter 4 mm. longus. *Petala* 5, angusta, apice fimbriata. *Stamina* circiter 10, in disco tubulato inserta, exserta. *Ovarium* 2-loculare, glabrum, sed apice hirsutum.

Mascarene Islands. Madagascar : Loucoubé, *Boivin* (type) not seen ; Nossi-bé, *Boivin*.

53. **Cassipourea Rogersii** *Alston* comb. nov. *Dactylopetalum Rogersii* S. Moore in Journ. Bot. 59 : 228 (1921).

Arbor ? ; ramuli glabri, purpurei lenticellis inconspicuis. *Folia* elliptica, basi cuneata, apice leviter late et obtuse acuminata, 7·5–10·5 cm. longa, 3·5–4·5 cm. lata, integra, coriacea, glabra ; nervi laterales e margine 4 mm. conjuncti, nervis tertiariis numerosis reticulatis ; petioli 10–12 mm. longi, glabri ; stipulae late triangulares, gummiferae, glabrae. *Flores* 5–7, pedicellis usque ad 1 mm. longis medio articulatis. *Calyx* campanulatus, 5-lobatus, 4 mm. longus, utrinque glaber ; lobi subtriangulares, obtusi. *Petala* anguste spatulata, glabra, fimbriata. *Stamina* 10, calyce fere duplo longiora, in disco inserta. *Ovarium* glabrum, 2–loculare.

Tropical Africa. Belgian Congo : Elizabethville about 1320 m., June 1920, *Rogers* 26209 (type).

54. **Cassipourea ugandensis** *Alston* comb. nov. *Dactylopetalum ugandense* Stapf in Journ. Linn. Soc. 37 : 515 (1906).

Arbor 20 m. alta vel altior ; ramuli subrobusti, atro-brunnei, glabri. *Folia* oblonga vel elliptica, basi breviter cuneata vel rotundata, apice rotundata vel subacuta, 6–11 cm. longa, 3–6 cm. lata, integra, subcoriacea, glabra ; nervi laterales plerumque prope marginem conjuncti, nervis tertiariis numerosis reticulatis ; petioli 1 cm. longi, glabri. *Flores* numerosi, subsessiles. *Calyx* campanulatus, ad partem quartam

4–5-lobatus, 3 mm. longus, utrinque glaber. *Petala* angusta, fimbriata. *Stamina* 8–10 calyce duplo longiora, in disco tubulato inserta. *Ovarium* biloculare, apice pilosum.
Tropical Africa. Uganda: Toro, 1600 m., *Dawe* 499 (type); Namalala forest, Nov. 1913, *Fyffe* 75, July 1913, *Fyffe* 29. Belgian Congo: Butagu Valley, West Ruwenzori, 2100 m., *Mildbraed* 2723; 1900 m., *Mildbraed* 2693.
Yields useful light brown wood.

55. **Cassipourea nodosa** *Alston* sp. nov.

Arbor ?; ramuli robusti, glabri, atropurpurei, nodis valde incrassatis. *Folia* verticillata, ovata, basi rotundata, apice vix et late acuminata, 10–15 cm. longa, 6·5–9 cm. lata, integra, coriacea, glabra; nervi laterales utrinsecus 7–11 prope marginem conjuncti vel irregulariter fissi, nervis tertiariis numerosis reticulatis; petioli usque ad 1·5 mm. longi. *Flores* numerosissimi, in nodis fasciculati; pedicelli 0·5 mm. longi. *Calyx* campanulatus, 5–6-lobatus, utrinque glaber, lobis apice tomentellis exceptis. *Petala* 5–6 glabra, spatulata, apice fimbriata. *Stamina* 15–18. *Ovarium* 2–3 loculare, glabrum; stylus glaber, apice obscure lobatus.
Tropical Africa. Northern Angola: Santo Antonio do Zaire, near the river Zaire, June 1923, *Gossweiler* 8759 (type).

56. **Cassipourea Mannii** *Engl.* in Engl. Bot. Jahrb. 54: 369 (1917). *Dactylopetalum Mannii* Hook. fil. in Oliv. Fl. Trop. Afr. 2: 412 (1871).

Arbor 8 m. alta; ramuli atro-brunnei, glabri. *Folia* decussata, oblongo-elliptica, basi rotundata, apice obtusa vel subacuta, 6–10 cm. longa, 3–5 cm. lata, integra, subcoriacea, glabra; nervi laterales prope marginem conjuncti; nervis tertiariis numerosis reticulatis; petioli 0·5–0·75 cm. longi. *Flores* numerosi, in nodis annotinis dense fasciculati; pedicelli usque ad 4·5 mm. longi, medio articulati. *Calyx* campanulatus, utrinque glaber, 3 mm. longus, 4–lobatus; lobi brevissimi. *Petala* linearia, apice dilatata et fimbriata. *Stamina* 8, in disco tubulato dentato inter dentes inserta, vix exserta. *Ovarium* glabrum, 2–loculare, loculis apice confluentibus.
Tropical Africa. Summit of the Peak of the Island of St. Thomas, *Mann* 1071 (type).

57. **Cassipourea Barteri** *N. E. Brown* in Kew Bull. 1894: 5. *Dactylopetalum Barteri* Hook. fil. in Oliv. Fl. Trop. Afr. 2: 412 (1891).

Frutex vel arbor parva, usque ad 6 m. alta; ramuli robusti vel subrobusti, atrobrunnei, glabri, lenticellis parvis inconspicuis. *Folia* opposita, oblonga, elliptica, basi rotundata vel cuneata, apice acuminata, 12–17 cm. longa, 7·5–9 cm. lata, integra, subcoriacea, glabra; nervi laterales prope marginem conjuncti, nervis tertiariis numerosis reticulatis; petioli 6 mm. longi, glabri. *Flores* in nodis ramulorum annotinorum dense fascicu-

lati ; pedicelli usque ad 1·5 mm. longi, medio articulati. *Calyx* campanulatus, leviter 5–6–lobatus, utrinque glaber, c. 3·5 mm. longus ; lobi acuti, in fructu latiores, subobtusi. *Petala* alba, angusta, apice fimbriata. *Stamina* c. 10 in disco tubuloso inserta. *Ovarium* 2–loculare, pubescens. *Fructus* immaturus ovatus, tomentosus.

Tropical Africa. S. Nigeria : R. Nun, *Barter* 2133 (type) ; Eket district, mouth of Kwa Ibo River along sea-shore, *Talbot* 3094 ; Bonny, June 1873, *Monteiro* ; Oni, on sandy strip between lagoon and sea, *Sankey* 11 ; Lagos, near swamp Mtaya, Dec. 1892, *Millen* 63 and 112 ; Lagos, without exact locality, April 1883, *Moloney*. Gabon : Cape Lopez, July 1902, *Debeaux* 410 ; Fru Gabon R., *Mann* 955. Angola : *Gossweiler* 6299. Useful hard red firewood.

Vernacular names : Iroko-Okun (Yoruba, *Hodges*), Pango Manga (*Gossweiler*).

58. **Cassipourea glabra** *Alston* sp. nov. *Dactylopetalum Mannii* Bak. fil. in Cat. Talb. Niger. Pl. : 127 (1913) non Hook. fil.

Arbor ; ramuli atro-brunnei, subrobusti, lenticellis albis copiosis indutis, glabri. *Folia* decussata, elliptica, basi breviter cuneata, apice obtusa, acuminata, 10–15 cm. longa, 5–6·5 cm. lata, integra, glabra ; nervi laterales plerumque prope marginem conjuncti, nervis tertiariis numerosis reticulatis ; petioli 1 cm. longi. *Flores* dense fasciculati ; pedicelli 2 mm. longi, medio articulati. *Calyx* campanulatus, 5–lobatus, utrinque glaber, 3·5 mm. longus ; lobi brevissimi. *Petala* 5, angusta, apice fimbriata, calyce fere duplo longiora. *Stamina* circiter 10 in disco tubuloso dentato inter dentes inserta, calyce fere duplo longiora. *Ovarium* glabrum, 2–loculare ; stylus longe exsertus, apice stigmate incrassato.

Tropical Africa. S. Nigeria : Oban dist., *Talbot* 1757 (type).

59. **Cassipourea annobonensis** *Mildbr.* ms., sp. nov.

Frutex 4 m. altus vel arbor ; ramuli graciles, atro-brunnei, glabri. *Folia* opposita, oblonga, basi cuneata, apice obtuse acuminata, 6–10·5 cm. longa, 3·5–4·5 cm. lata, integra vel leviter sinuata, subcoriacea, utrinque glabra ; nervi laterales prope marginem conjuncti, nervis tertiariis numerosis reticulatis ; petioli 1 cm. longi, glabri. *Flores* 3–7 ; pedicelli 4 mm. longi, medio articulati. *Calyx* campanulatus, 4–lobatus, utrinque glaber, circiter 3 mm. longus, lobis 1 mm. longis. *Petala* 4, anguste spatulata, apice fimbriata, exserta. *Stamina* calyce duplo longiora, in disco tubuloso inter dentes obtusos inserta ; antherae glabrae. *Ovarium* glabrum, in fructu ovoideum, 2–loculare, stylo gracile subpersistente coronatum.

Tropical Africa. Annobon Island : at the upper end of the north crater, at the beginning of the mist forest belt, 450 m., Aug. 1911, *Mildbraed* 6511 (type) ; Peak of Santa Mina, mist forest belt. 650 m., *Mildbraed* 6696.

60. **Cassipourea paradoxa** *Alston* sp. nov.

Arbor; ramuli brunnei, glabri. *Folia* elliptica, basi cuneata apice obtusa, vix acuminata 11–16 cm. longa, 4·5–6 cm. lata, sinuata, glabra, siccitate nervis distinctis; nervi laterales prope marginem conjuncti, nervis tertiariis numerosis reticulatis; petioli circiter 13 mm. longi, glabri; stipulae subpersistentes, triangulares, 1·5 mm. longae, glabrae, viscidae, crassae. *Flores* numerosi; pedicelli circiter 4 mm. longi, medio articulati, glabri. *Calyx* ad partem quartam lobatus, utrinque glaber, 4 mm. longus. *Petala* angusta, apice fimbriata, glabra, calyce fere duplo longiora. *Stamina* 15 quorum 5 extra discum inserta, 10 in disco tubuloso dentato inserta, exserta. *Ovarium* biloculare, apice leviter pilosum; stylus glaber, calyce duplo longior, apice vix 2-lobatus.

Mascarene Islands. Seychelles: Botanic Station, Dec. 1915, *Dupont* (type).

61. **Cassipourea Redslobii** *Engl.* in Engl. Bot. Jahrb. 54: 368 (1917); Engl. Pflanzenwelt Afrikas 3: 2, t. 299.

Arbor 10 m. alta; ramuli brunnei, glabri. *Folia* opposita, oblonga, basi rotundata vel leviter cuneata, apice levissime acuminata, 9·5–13 cm. longa, 4–6 cm. lata, integra subcoriacea, glabra; nervi laterales prope marginem conjuncti, nervis tertiariis numerosis reticulatis; petioli 1 cm. longi, glabri. *Flores* dense fasciculati; pedicelli 5 mm. longi, medio articulati. *Calyx* campanulatus, 3 mm. longus, 5–6-lobatus, utrinque glaber, apicibus puberulis loborum exceptis, lobis subtriangularibus 1 mm. longis. *Petala* angusta, apice fimbriata, 6·5 mm. longa. *Stamina* 10–12 in disco tubuloso inserta, 8·5 mm. longa. *Ovarium* 2–3-loculare, breviter pilosum.

Tropical Africa. Tanganyika Territory: Uluguru, on clayey mountainous land near Manjanga, 600 m., *Redslob* 2981 (type), 2907 (not seen). Mozambique: mile $10\frac{1}{2}$ T. Z. R., March 1921, *Honey* 716.

Useful timber; used on the Trans-Zambesi Railway.

Vernacular names: Mtomondo (Kiguru, *Redslob*), Rutanda (*Honey*).

62. **Cassipourea verticillata** *N. E. Brown* in Kew Bull. 1894: 5; Wood Natal Plants 3: t. 276. *Dactylopetalum verticillatum* Schinz in Bull. Herb. Boiss. 5: 866 (1897).

Arbor parva; ramuli atro-brunnei, glabri. *Folia* verticillata vel rariter decussata, oblonga, basi truncata vel cuneata, apice obtusa, acuminata, 8·5–10 cm. longa, 3·5–5·5 cm. lata, integra vel leviter sinuata, subcoriacea, supra plerumque glauca, glabra; nervi laterales prope marginem conjuncti, nervis tertiariis numerosis reticulatis; petioli 1 cm. longi, glabri. *Flores* dense fasciculati, verticillati; pedicelli 4 mm. longi, medio articulati. *Calyx* campanulatus ultra partem quartam 6–7-lobatus, utrinque glaber, 4·5 mm. longus, lobi triangulares, acuti sed fructu latiores, subobtusi. *Petala* exserta, angusta,

apice fimbriata, ungue appresse piloso. *Stamina* circiter 12, basi in disco tubulato inserta, calyce circiter duplo longiora. *Ovarium* ovoideum, 2-loculare, breviter pilosum. *Capsula* oblonga.

South Africa. Natal: Pinetown, 1000 m., Apr. 1887, *Wood* 3876, and May 1889, 662; Caedmon near Durban, fruit June 1892, *Wood* 4619.

Species non satis nota.

Weihea wambugensis *Engl.* Pflanzenwelt Afrikas 3, 2 : 669 (1921), nomen.

Tropical Africa. Tanganyika Territory: Wambuguland, West Usambara, 1400 m.

Vernacular name: Muhando.

Species dubia.

Legnotis lanceolata *Blanco* Fl. Filip. Ed. 1 : 445.

Species excludendae.

Weihea nitida v. Brehmer = *Psorospermum febrifugum* Spach (*Hypericaceae*).

Weihea subpeltata T. R. Sim = *Androstachys Johnsonii* Prain (*Euphorbiaceae*).

Weihea magdalenae Spreng. ex DC. = *Loranthus magdalenae* Cham. and Schlecht. (*Loranthaceae*).

XXIX.—THE GENUS POISSONIA BAILLON.

Lucien Hauman.

Museo Nacional de Historia Natural, Buenos Aires.

The genus *Poissonia* (with one species *P. solanacea*) was created by Baillon* in 1870 for a curious Leguminous shrub with simple (unifoliolate) leaves collected in the Peruvian Andes by Claude Gay, and placed by its author among the *Papilionaceae-Galegeae*. But in the same year Bentham described the same plant in Hook. Ic. Pl. t. 1065 (vol. xi: 1867–71), under the name of *Coursetia orbicularis*, and another nearly allied species, with larger leaves, as *C. eriantha*: the specimens were collected by Pearce in the mountains of Peru.† I have seen Baillon's type in Paris and

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* Adansonia ix. p. 295.

† Bentham, loc. cit., said "Pampas (of Bolivia ?)" for *C. orbicularis*, but the date of collection, March 1867, shows that this "Pampas" is a Peruvian locality; *C. eriantha* also comes from the same region: it was collected at La Banca (not "La Ronca" as Bentham wrote) in January, 1867, and we know that Pearce was in the same month in Andahuailles (Peru, 13°40′ S., 73° 30′ W.). I am indebted for this information to the kindness of Dr. Hill, who communicated to me the notes on Pearce's itinerary, which he has carefully studied.

those of Bentham at Kew : the specific identity of *C. orbicularis* and *P. solanacea*, already mentioned in the Index Kewensis, is beyond doubt. The question of priority, which had hitherto remained doubtful, has now been cleared up. The exact date of publication—February, 1870—of the plates 1051–1075 of the Icones (M.S. note in the copy in the Kew Library) is anterior to the date at which Baillon's description was printed, namely, 20th April, 1870 (see Adansonia, xi. 289).

Poissonia is given as synonymous with *Coursetia* in the Index Kewensis, but Taubert* not only retains *Poissonia* (with, he says, one species only, *P. solanacea* Baill.), but places it among the *Galegeae-Tephrosiinae*, and *Coursetia* among the *Galegeae-Robiniinae* (p. 277) : *Poissonia*, however, has true axillary flowers, and the receptacle is without a disc (in *P. hypoleuca*, the only species in which I could study this character), and these are diagnostic characters of the *Galegeae-Robiniinae*. Capitaine† also retains *Poissonia*. Spegazzini‡ in 1916 founded the genus *Chiovendaea*, unquestionably congeneric with *Poissonia*, on a xerophilous shrub from the subtropical Andes of Argentina. Comparison of *Chiovendaea hypoleuca* Speg., which I collected in the same region, with the type of *Coursetia eriantha*, shows that these species are closely allied, but not identical.

Finally, Harms§ in 1923 described a new variety of *C. orbicularis* (var. *mantaroana* Harms, also from Peru), and divided the genus *Coursetia* into a series *Monophyllae* (foliolo unico), comprising *C. orbicularis* and *C. eriantha*, and a series *Polyphyllae*, for the species with pinnate leaves.

It seems, however, that the peculiar form of the style, thick and glabrous, with a more or less complete and dense ring of white and rigid hairs under the aciculate stigma (contrasting with the pubescent style and capitate stigma seen in the true species of *Coursetia*), the large unifoliolate leaves and the very peculiar habit, justify the retention of Baillon's genus.‖ We may accordingly distinguish among the *Galegeae-Robiniinae* the two genera, *Coursetia* and *Poissonia*.

Coursetia *DC.*, 1825 ; foliis pinnatis plurijugis, stylo filiformi laxe pubescente, stigmate capitato (staminibus omnibus basi semper plus minusve connatis ?).—Texas usque Bolivia (et Paraguay ?).

Poissonia *Baillon*, 1870 (*Chiovendaea* Speg., 1916 ; *Coursetia*, series *Monophyllae* Harms, 1923) ; foliis simplicibus (unifoliolatis)

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* Engl. & Prantl, Pflanzenfamilien iii. 3, p. 273 (1894).

† Etudes analyt. des Légumineuses, pp. 38, 40, 156 (Bull. Géogr. Bot. 1913, xxiii. nn. 281–283).

‡ Anales Soc. Ci. Argent. vol. 82, pp. 217–232.

§ Fedde, Repert. xix. p. 15.

‖ Capitaine, op. cit., in the key attributes to *Coursetia* stamens all more or less connate at the base, and to *Poissonia* a vexillary stamen entirely free. I do not know whether this character, exact for *P. hypoleuca*, *P. orbicularis* (cf. Bentham's plate) and *C. dubia* DC., is of general application.

rotundatis vel cordatis, stylo robusto glabro, pilis omnibus sub stigmate aciculari in annulo perfecto vel imperfecto condensatis (stamine vexillari e basi semper libero ?).—Peru (verosimiliter etiam Bolivia) et Argentina septentrionalis, in Andibus.

I give in the following key the most important characters of the three species of *Poissonia* :—

Folia fere orbicularia, ad 2 cm. longa, brevipetiolata (5–6 mm.) ; internodia vix 1 cm. longa :

Folia supra glabra, flores solitarii (vel 2–3 racemosi ?) .....1. *P. orbicularis* (Benth.) Haum.

Folia utrinque tomentosa, flores racemosi .....1. *P. orbicularis* var. *mantaroana* (Harms) Haum.

Folia cordata ; internodia et petioli quam in specie praecedente 2–4-plo majores :

Indumentum sat longum, fere lanatum, itaque foliorum lamina in facie superiore glabra albido-cincta videtur ; petioli 10–14 mm. longi ; laminae 30–40 mm. longae, 25–35 mm. latae ; inflorescentiae pauciflorae ; calyx turbinatus, laciniis e basi subulatis, sinibus late rotundatis ; vexillum albo-pubescens ; fructus (unicus et nondum maturus !) 3 cm. longus, laevis ; semina 7 .....2. *P. eriantha* (Benth.) Haum.

Indumentum brevius, appressum, folia itaque haud albido-cincta ; petioli ad 30 mm. longi ; laminae 55–70 mm. longae, 45–55 mm. latae ; inflorescentiae pluri-multi-florae ; calyx campanulatus, laciniis triangularibus, sinibus acutis ; vexillum glabrum ; fructus perfecte dehiscentes, ad 8–9 cm. longi, inter semina profunde sulcati ; semina usque 13 .....3. *P. hypoleuca* (Speg.) Haum.

Styles of *Poissonia* and *Coursetia*.

a, *Poissonia orbicularis* ; b, *P. hypoleuca* ; c, *P. eriantha* ; d, *Coursetia axillaris*. All x 4.

1. **P. orbicularis** (*Benth.*) *Haum.*, comb. nov.—*Coursetia orbicularis* Benth. in Hook. Ic. Pl. t. 1065 (Feb. 1870). *Poissonia solanacea* Baill. in Adansonia, ix. 296 (April 1870).

Hab. Peru : Pampas, 2400–2700 m., fl. and fr. March 1867, *Pearce* ; without locality, *Claude Gay* 180 (Herb. Mus. Par.).

According to Pearce, *P. orbicularis* is an evergreen shrub, 4–6 ft. high, with rose-coloured flowers.

P. orbicularis var. **mantaroana** (*Harms*) *Haum.*, comb. nov.—*Coursetia orbicularis* var. *mantaroana* Harms in Fedde, Repert. xix. 15 (1923).
Hab. Peru : Dep. Huancavelica ; Prov. Tayacaya, valley of the river Mantaro, 1400–1500 m., on grasse-steppe, fl. March, *Weberbauer* 6513.

2. **P. eriantha** (*Benth.*) *Haum.*, comb. nov.—*Coursetia eriantha* Benth. in Hook. Ic. Pl. sub t. 1065 (1870).
Hab. Peru : La Banca, 2700–3000 m., fl. Jan. 1867, *Pearce.*

Pearce described *P. eriantha* as an evergreen shrub, 6–10 ft. high, with violet flowers.

3. **P. hypoleuca** (*Speg.*) *Haum.*, comb. nov.—*Chiovendaea hypoleuca* Speg. in An. Soc. Ci. Argent. lxxxii. 220 (1916).
Hab. Argentina : subtropical Andes, *Spegazzini*, *Hauman.*

XXX.—DECADES KEWENSES

PLANTARUM NOVARUM IN HERBARIO HORTI REGII CONSERVATORUM.

DECAS CXI.

1101. **Ranunculus Munroanus** *J. R. Drumm.* ex *Dunn* [Ranunculaceae-Ranunculeae] ; differt a *R. pygmaeo* Wahlenb. foliis majoribus rotundatis et radice tuberosa.

Herba perennis, 5–20 cm. alta. *Radix* tuberibus 6–8 fusiformibus sessilibus 3–5 cm. longis constans. *Caules* erecti vel decumbentes, 5–20 cm. alti, subflexuosi, superne parce lanuginosi. *Folia radicalia* profunde cordata, fere ad basin laminae trilobata sed saepe lobis incumbentibus circumscriptione rotundata, subcrenata, ad 3 cm. lata, longe petiolata ; petioli graciles ad 14 cm. longi, basi late vaginantes. *Folia caulina* similia sed minus rotundata. *Flores* axillares, glabri, graciliter et passim longissime pedunculati. *Sepala* 5, patula, 3 mm. longa, ovata, obtusa. *Petala* 5, cuneata, obtusa, 4–5 mm. longa, nitentia, lutea. *Carpella* matura capitulum globosum 4 mm. diam. formantia, stylo brevissimo apiculata, late ovoidea, subinflata, 1 mm. diam., glabra, straminea.

KASHMIR. W. Tibet, 27 June 1838, *Falconer* 41 ; Pass to Gurais, N. side, 21 June 1847, *Munro* 514 ; Deorsai at 4000 m., 31 July 1876, *C. B. Clarke* 29834 ; near Sheshnag at the base of rocks, 3750 m., 10 July 1902, *J. R. Drummond* 14173 ; Astanmarg,

3600–3900 m., 12 July 1902, *J. R. Drummond* 14304 ; *Sahni* 287 ; above Gulmarg, 3400 m., 31 May 1892, *Duthie* ; Liddarwat, 3000 m., forming dense extensive patches of plants 5–8 cm. high on moist banks, but taller and larger at higher elevations, 20 July 1924, *B. O. Coventry* 889.

This species was long thought to be distinct by Mr. Drummond, but it was not until Mr. Coventry's abundant specimens and careful field notes reached Kew that its definite publication became possible.

1102. **Ranunculus palifolius** *Dunn* [Ranunculaceae-Ranunculeae]; ab *R. Cymbalaria* Pursh carpellis maturis inflatis rostratis capitulum globosum formantibus distincta.

Herba perennis, praeter sepala glabra, stolones longos radicantes emittens. *Radix* fibrosa, vestigiis foliorum delapsorum coronata. *Folia radicalia* 3–4 cm. longa ; lamina oblonga tridentata, basi rotundata vel cuneata, petiolo aequalis vel brevior. *Folia stolonum* similia sed minora. *Flores* solitarii, pedunculis 1–3 cm. longis radicalibus suffulti. *Sepala* 5, patula, 5 mm. longa, ovata, obtusa, dorso pilosiuscula. *Petala* 5 vel plura, 5 mm. longa, oblonga, obtusa, lutea. *Carpella* matura capitulum globosum 4 mm. diam. formantia, ovoidea, inflata, membranacea, costata, 1 mm. diam., stylo longo hamato terminata.

Kashmir. Mulra Valley, at 3300 m., *T. Thomson* ; Ladak, *J. L. Stewart* ; British Lahul beyond the Baralacha Pass at 5000 m., 30 March 1920, *Kashyap* 44.

1103. **Shorea mecistopteryx** *Ridl.* [Dipterocarpaceae] ; *S. Beccarianae* Burck. affinis, differt foliis multo majoribus oblongis distincte cordatis subtus pilis stellatis dense tectis, fructu breviore, alis longissimis angustioribus lineari-lanceolatis.

Arbor 32 m. alta, 75 cm. diam. ; *foliis* coriaceis oblongis basibus cordatis, nervis 20 paribus subtus elevatis, costa depressa subtus crassa, superne glabris politis subtus pilis stellatis dense tectis, 30 cm. longis 11·5 cm. latis, petiolis crassis 5 cm. longis ; *floribus* ignotis ; *fructibus* ovoideo-conicis 4 cm. longis 2·5 cm. diametro, alis 5, exterioribus 3, basibus dilatatis, superne elongatis lineari-lanceolatis obtusis, 25 cm. longis, 3 cm. latis, nervis elevatis 14, nervulis ascendentibus nec horizontalibus, alis interioribus 2 minoribus, una 19 cm. longa, 14 mm. lata, altera minore.

Borneo. Sandakan, on hills in Kinabatangan, 80 ft. alt., Nov. 1922, " Kang kawang," *Taha*.

This tree is sometimes called " Kawang " or " Tingkawang." The fruits contain an edible fat. It belongs to the section *Pachychlamys* of *Shorea*, several species of which contain the valued fat known as Minyak Tengkawang. It is remarkable for the extraordinary long and narrow wings of the fruit, which are much the longest in any known species of the genus or indeed of the Family.

1104. **Gomphia oblongifolia** *Ridl.* [Ochnaceae–Ochneae] ; affinis *G. sumatranae* Jack, a qua differt foliis coriaceis oblongis basibus integris, floribus minoribus, sepalis ovato-oblongis obtusis, drupis haud superantibus.

Arbor 13 ad 16 metras alta ; *foliis* coriaceis nitidis oblongis vel lanceolato-oblongis acutis vel acuminatis, basibus breviter attenuatis, marginibus ad bases integris superne serratis, nervis parallelis plurimis tenuibus, intramarginalibus tenuibus 2 vel 3 ; 5–13 cm. longis, 3–4 cm. latis, petiolis 5 mm. longis ; *paniculis* in ramis terminalibus multiramosis densis vel laxe patentibus 11–15 cm. longis, 11 cm. latis ; *floribus* copiosis ; *pedicellis* 2–5 mm. longis ; *sepalis* ovato-oblongis subacutis vel saepius obtusis coriaceis 4 mm. longis. *Petalis* majoribus 6 mm. longis, oblongis rotundatis retusis, pallide flavescentibus vel flavis vel aurantiacis ; *staminibus* 10, antheris quam filamenta longioribus ; *drupis* 5 obovato-reniformibus atris 8 mm. longis, in receptaculo cum sepalis rubris.—*Gomphia sumatrana* Wall. Cat. 2803, Hook. fil. F.B.I. i. 525 ; King Journ. As. Soc. Beng. lxii. 232 ; Ridl. Flor. Mal. Pen. 365 (not of Jack).

Malay Peninsula. Singapore ; common in wood at 166 m. alt., Bukit Timah, *Hullett* 879. Malacca ; Bukit Baru, *Maingay* 295. Perak ; Kinta, *Kunstler* 4545. Penang ; Batu Feringhi, *Curtis* 221.

This species has long been confused with the very distinct but little-known *G. sumatrana* Jack, which appears to be confined to Western Sumatra. *G. oblongifolia* appears to be confined to the Malay peninsula, and to be absent from Sumatra and Borneo. In Wallich's Herbarium Cat. 6392 are two imperfect scraps collected by Finlayson, without locality, and named by Wallich *Gomphia* ? *Finlaysoniana* Herb. Finlays. This name seems never to have been taken up by any author. It is possible that these are poor scraps of one of the Malay peninsular trees, but I have not seen anything exactly like them.

1105. **Eremophila foliosissima** *Kraenzl.* [Myoporinaceae] ; differt *E. Mackinlayi* F. v. M. cui proxima praesertim foliis densissimus, linearibus, intricatis, convenit cum illa specie floribus primo aspectu similibus calycis laciniis tantum diversis.

Frutex metralis vel ultra. *Rami* breves, intertexti, cortice brunneo nitido albo-piloso tecti, cicatricibus foliorum delapsorum valde prosilientibus obsiti. *Folia* numerosissima, anguste linearia vel filiformia, obtusa, canaliculata, breviter denseque albido-pilosa, quam maxime intertexta, 4 ad 6 cm. longa, 1·5 ad 2 mm. lata. *Flores* singuli in axillis foliorum superiorum, pedicelli apice paululum incrassati, 1 cm. longi, dense albido-pilosi. *Calyx* basim usque fissus, segmenta e basi latiore sensim angustata, longe triangula, acuminata, corollam fere aequantia. *Corolla* cylindraceo-campanulata, extus glabra intus in parte anteriore pulvinari sparsim longeque piloso praedita, ceterum glabra, basi ipsa paulum ampliata, deinde leviter contracta, ut

videtur pallide rosea, intensius venosa, lobi subaequales, oblongi, rotundati, tota corolla 2 ad 2·2 cm. longa, ad orificium 1 cm. diametro. *Stamina* profunde inserta, filamenta compressiuscula, longiora 8 ad 9, breviora 6 mm. longa, antherae valde expansae vel apertae. *Ovarium* elongatum, ipsum et stylus minutissime pilosa, 1·8 cm. longa. *Fructus* semimaturus (?) fere 1·5 cm. longus, 1 cm. diametro, putamine valde rugoso textus.—Fl. Octobri.

Western Australia. Laverton: North Coolgardie, *F. A. Rodway!* (Herb. Kew.).

The present specimen, which seems to be the only existing one, resembles a small stunted branch of the common Scotch fir, *Pinus silvestris*. The very numerous leaves are twisted in a confused manner. The flowers are like those of *Eremophila Mackinlayi* F. v. M., but the calyx lobes are longer, being nearly as long as the corolla. There are many narrow-leaved species of *Eremophila* in the Australian deserts, but this species can be recognised from all of those hitherto described and figured by its very peculiar foliage. The only related species is *E. Mackinlayi* which is figured in F. v. Mueller's "Myoporinous Plants of Australia" t. 7 (plates without text), but F. v. Mueller's description in "Fragmente Phytographia Australia," iv, 80, and that in Bentham's Fl. Austr. v. 17, agrees only with the figure on the right of plate 22 of F. v. M.'s book and not with that on the left. The analytical figures appear to belong to *E. Mackinlayi*.

1106. **Eremophila abietina** *Kraenzl.* [Myoporinaceae]; *E. rotundifoliae* F. v. M. floribus proxima, tamen habitu diversa et potius *E. densifoliae* F. v. M. comparanda.

Frutex bimetralis et ultra (6 ad 8 ped.); *rami* breves, cortice fusco tecti, cicatricibus foliorum delapsorum pro rata magnis valde prosilientibus obsiti. *Folia* numerosissima, linearia, superne sulcata, teretia, obtusa, stricta, illis *Abietis pectinatae* nostrae simillima, 1·3 cm. longa, 1 mm. diametro, pilosa. *Flores* in axillis foliorum supremorum, ad apices ramorum congesti, pedicelli sub calyce ipso incrassati, 1·2 cm. longi. *Calyx* magnus, patentissimus, fere basim usque fissus, segmenta magna, latissime oblonga, obtusa vel apice rotundata, manifeste reticulata, dorsale maximum, 1·6 cm. longum, 1·4 cm. latum, lateralia quaeque minora, 1·4 vel 1 cm. longa, 11 vel 8 mm. lata. *Corolla* ample campanulata, 3 cm. longa, lobi breves trianguli vel ovato-oblongi, subobtusi, anterior leviter emarginatus, tota extus et intus glabra, tenerrima. *Stamina* tubum aequantia, filamenta compressa, glabra, antherarum loculamenta ringentia. *Ovarium* elongato-ovatum, stylus tubum corollae superans, minutissime pilosus, 3·3 cm. longus.—*Color floris* ex sicco pallide roseus, calyx certe coloratus, intensius reticulato-venosus. Fl. Novembri.

Western Australia. Laverton; North Coolgardie, *F. A. Rodway*! (Herb. Kew.).

Except for its magnificent flowers the plant looks exactly like a small bush of *Abies pectinata* DC. The leaves are numerous and so densely crowded that it is impossible to state if they are opposite or not. In length, thickness and size they exactly resemble those of the Spruce. The flowers arise singly from the axils of the leaves at the tops of the branches, apparently 6 to 8 in number, and are of a considerable size even for a genus so rich in magnificent flowers as *Eremophila*. Plate 9 of F. v. Mueller's "Myoporinous Plants" representing *E. rotundifolia* F. v. M. gives an idea of the flowers of the present species.

1107. **Eremophila exotrachys** *Kraenzl.* [Myoporinaceae]; differt ab *E. resinosa* F. v. M., foliis densius congestis, floribus majoribus, calycibus magnis profundius immersis, parte basilari cylindracea corollae brevissima vel subnulla, ceterum valde affinis.

Fruticulus, ut videtur, parvus, ramosus; *rami* oblique erecti, striati, 10 ad 15 cm. longi, dense foliati, cortice cinnamomeo breviter albido-piloso tecti. *Folia* dissita, parva, erecta, nunquam reclinata vel reflexa, sessilia, obovata, breviter crasseque apiculata, plana (non longitudinaliter plicata), margine integra, utrinque breviter pilosa, 6 ad 7 mm. longa, 3 mm. lata. *Flores* apicem versus ramorum singuli ex axillis foliorum orientes, brevissime pedicellati. *Calyx* circiter dimidium usque fissus, segmenta late oblonga, apice rotundata, totus campanulatus, 6 mm. longus, corollae fere dimidium aequans, ubique dense stellatim pilosus. *Corolla* cylindraceo-campanulacea, sicca sordide purpurea, extus pilis longis simplicibus albidis vestita, 1·4 cm. longa, lobi transverse oblongi, vix patuli, breves, antice retusi. *Stamina* quam corolla breviora, in tubo inclusa. *Ovarium* mihi non visum.—Fl. Septembri.

Western Australia. Victoria desert, camp 41, *R. Helms*! (Herb. Kew.).

A rather indifferent looking plant resembling somewhat *E. resinosa* F. v. M. or *E. scoparia* F. v. M. (*Pholidia scoparia* R. Br.). It differs principally in the long coarse hairs outside the corolla, in the leaves not being opposite, and in the relatively large, rounded lobes of the calyx.

1108. **Crinum Forgetii** *C. H. Wright* [Amaryllidaceae-Amarylleae]; *C. Hildebrandtii* Vatke affinis, foliis oblongo-lanceolatis differt.

Caulis 10 cm. altus. *Folia* basi amplexicaulia, oblongo-lanceolata, acuta vel breviter acuminata, usque ad 38 cm. longa, 7 cm. lata, basi super vaginam 2 cm. lata, mollia, minutissime foveolata, marginibus cartilaginis minute denticulatis. *Scapus* lateralis, subcylindricus, 32 cm. altus, 12 mm. diametro, 5-florus; spathae deltoideae, 9 cm. longae; flores sessiles. *Perianthii* tubus viridis, 21 cm. longus, 5 mm. diametro; lobi ligulati, acuminati, albi, revoluti, 9 cm. longi, 1 cm. lati. *Filamenta* subulata, rubra, 4·5 cm. longa; antherae oblongae,

12 mm. longae. *Ovarium* oblongum, 15 mm. longum, obscure viride ; stylus ruber, staminibus paullo longior ; stigma punctiforme.

Peru : without exact locality, *Forget.*

This resembles *C. Hildebrandtii* in having a long perianth-tube, but is at once distinguished by the shape of its shorter leaves. It is described from a plant which flowered at Kew and had been received from Messrs. Sander & Sons.

1109. **Smilax erecta** *Osmaston* [Liliaceae-Smilaceae] ; affinis *S. parvifoliae* Wall., sed planta erecta, floribus viridibus differt.

Frutex glaber, 30–60 cm. altus. *Caulis* inermis, laevis, gracilis, erectus ; ramuli teretes. *Folia* ovata aut lanceolata, acuta aut acuminata, 3·7 usque ad 7·5 cm. longa, 1·9–4·5 cm. lata, integra, subcoriacea, subtus dense papillosa, basi rotundata, 5–7-nervia, petioli 0·6–1·9 cm. longi, usque ad medium et ultra vaginati, saepe cirrhis duobus indivisis 2·5–7·5 mm. longis muniti. *Flores* 5 mm. diametro, virides, dioici, in umbellis axillaribus solitariis pedunculatis dispositi. *Umbellae* ♂ 1–5-florae ; ♀ 1–2-florae ; pedunculi gracillimi, in planta ♂ 0·5–1·5 cm. in ♀ usque ad 2·5 cm. longi ; pedicelli filiformes, 0·5–1·5 cm. longi ; bracteolae minutae. *Perianthium* inferius, segmentis 6 ovato-oblongis subacutis 2–2·5 mm. longis. *Stamina* 6 ; filamenta brevia, circiter 5 mm. longa. *Ovarium* liberum, glabrum ; stigma 3-partitum. *Bacca* 6–7 mm. diametro, globosa vel ovoidea, nigra, saepius uniovulata.

India. Garhwal, 2200–2800 m., *Osmaston* 926, 1076 ; Khasia Mountains, 1660 m., *C. B. Clarke* 43891.

This plant resembles *Smilax parvifolia* Wall., from which it differs in its erect habit of growth and in the colour of its flowers, which are green instead of pinkish-brown. It is also distinguished from both *S. parvifolia* Wall. and *S. elegans* Wall. (=*S. menispermoidea* A. DC.) by the densely papillose under-surface of the leaf which in both the above species is either quite smooth or pitted but not papillose. Whilst, however, Wallich's 5118, which is taken as the type of *S. parvifolia* Wall., is not papillose on the undersurface of the leaf, his 5117 B (which in the Flora of British India is taken as a cotype of *S. parvifolia* Wall.) is variable in this respect and I believe it will be found to consist of two different species, both differing from the one now described.

S. erecta is found growing between 7000 and 8500 feet elevation in Garhwal and, according to C. B. Clarke, at 5000 feet in the Khasias. It is often more or less gregarious and sometimes forms dense patches of undergrowth in shady forests of *Cupressus torulosa* D. Don and *Quercus incana* Roxb. It flowers in May and June and is evergreen.

1110. **Ophiurus Pollockii** *Marquand* [Gramineae–Andropogoneae] ; *O. corymboso* Gaertn. affinis sed minor, laminis pubescentibus, gluma inferiore conspicue tuberculata.

Gramen dubio perenne, 15–20 cm. altum. *Culmi* ascendentes vel subprostrati, pergraciles, ramosissimi, pubescentes, nodis parce pilosis. *Foliorum* vaginae striatae, pubescentes ; laminae linearilanceolatae, attenuatae, 3–7 cm. longae, ad 4 mm. latae. *Rhachis* glabrescens. *Spicae* pedunculatae, 5–10 cm. longae, 2 mm. latae, cylindricae, glabrescentes, bracteatae. *Spiculae* sessiles, in rhachi depressae ; gluma inferior subobtusa, convexa, circiter 3 mm. longa, 2 mm. lata, durissima, conspicue tuberculata ; gluma superior membranacea, fere 3 mm. longa. *Paleae* parvae, membranaceae.—*Ophiurus corymbosus* var. ? *pubescens* Benth. Fl. Austral. vii. 512 (1878).

AUSTRALIA. Northern Territory, Hooker's Creek, *F. Mueller* ; North Queensland, Cooktown and Townsville, *V. A. R. Pollock.*

Allied to *O. corymbosus* Gaertn., but differing in the outer glume being more distinctly tuberculate and in the leaves being pubescent as well as in the less erect habit and much shorter stature.

XXXI.—MISCELLANEOUS NOTES.

Botanical Magazine.—The second part of volume cl. of the Botanical Magazine contains the following figures of interesting plants :—

Rhododendron glischrum Balf. f. & W. W. Smith (t. 9035), from N.W. Yunnan ; *Primula melanops* W. W. Smith & Ward (t. 9036), a native of S.W. Szechuan, which flowered at Kew in May, 1924, from seed sent by Capt. Kingdon Ward ; *Clematis napaulensis* DC. (t. 9037), a native of North India (Garhwal and Bhutan) and S.W. Yunnan ; *Montbretia laxiflora* Klatt (t. 9038), from Southern Cape Colony ; *Cyrtorchis bistorta* Schlechter (t. 9039), from Nigeria, figured from plants grown at Kew ; *Agapetes speciosa* Hemsl. (t. 9040), with a brilliant crimson flower, introduced by chance into this country in a clump of orchids, and believed to have come from Burma ; *Aeginetia indica* Linn. (t. 9041), a parasite on the roots of grasses in the Indo-Malayan region, figured from plants grown at Kew in 1924 ; *Ochna serrulata* Walp. (t. 9042), from Natal ; *Cladrastis sinensis* Hemsl. (t. 9043), from Central China, which flowered at Kew for the first time in 1923 ; *Crocus Kotschyanus* C. Koch (t. 9044), a native of Asia Minor ; and *Sarcococca ruscifolia* Stapf (t. 9045), from Western China.

Flora Capensis.—Mr. E. E. Galpin has pointed out an error under *Myrica Burmanni* E. Meyer in the recently published part of volume V, due to the misinterpretation of the label with his no. 4581. He states that "Lottering Bush" is the name of a place, not the vernacular name of the plant. Line 6 on page 565 of the Flora should, therefore, be deleted, and line 5 should read :—Humansdorp Div. ; Zitzikama, Lottering Bush, about 500 ft., *Galpin* 4581 partly.

The Food Plants of the Philippines.*—Successful introduction of plants since the American occupation has enhanced the food supply of the Philippines. As permanent food plants 124 native species are recorded apart from many edible Fungi, and with about the same number of recently introduced species and the numerous tropical fruits and vegetables already well-established the number of edible species is 532. The chief staple foods are rice, maize, sweet potato, yam, *Colocasia*, beans (*Phaseolus* and *Vigna*), and the Cucurbitaceous pumpkin and squash. To these must be added the Coconut, with 86 variety names, by far the most important fruit, the banana in about 60 varieties, and the mango. Sugar cane is, next to rice, the most important crop.

A strawberry (*Fragaria chiloensis* Dch.) is cultivated at the higher altitudes, and there are 9 native species of *Rubus*, all edible, but chiefly hopeful for hybridisation with temperate forms. *Citrus* fruits are numerous, some indigenous species making excellent substitutes for imported oranges, mandarins and lemons, besides being canker-resisting and providing good stock for grafts. Similarly the mangosteen is grafted on the indigenous and vigorous *Garcinia Benthami* Pierre.

These islands with diversity of soil and climate might well be self-sufficient, yet huge quantities of foodstuffs are imported, particularly rice and wheat flour. Although the imports of the former show a steady decline this is balanced by the increase of the latter, a circumstance which finds a parallel amongst other tropical races to whom the alien wheat comes first as a luxury but wins its way to become a staple. The author suggests that rice imports may be eliminated with sufficient irrigation to permit a dry season crop, and with general improvement of methods and seed selection. Also by the use of the grain *adlay* (known elsewhere as "Job's Tears," *Coix Lacryma-Jobi*), mixed with wheat, it is hoped to reduce imports of the latter by one-half to two-thirds. Eventually an export of rice is predicted.

Analysis of some 200 food materials is given, and chapters on storing, packing, etc., of seeds and cuttings are appended.

J. M. D.

Coffee.†—A comprehensive account of the economic species of the genus *Coffea* has long been a *desideratum*. This need has now been supplied by Dr. Ralph Holt Cheney, Assistant Professor of Biology, Washington Square College, New York University. The author has succeded admirably in making his book of interest

* The Food Plants of the Philippines. By P. J. Wester. Third revised edition. Bull. no. 39 of the Bureau of Agriculture, Government of the Philippine Islands. Manila, 1924. Pp. x. & 236, with 67 plates (including 1 map) and 1 text-fig. $1.

† Coffee, a Monograph of the Economic Species of the Genus *Coffea* L. The New York University Press, 32 Waverley Place, New York City, 1925, pp. 244, plates 77, maps 8.

to a very varied class of reader, the botanist, economist, grower, and antiquarian. A useful dichotomous key is given to the economic species, of which there are nineteen, and each species is described with full bibliographical references. It is very much to be regretted, however, that an important work of this kind should be so badly illustrated. The photography of herbarium sheets is a special subject and needs the use of particular plates for the correct rendering of the light values. Then the inclusion of a large and ugly scale of measurement in each plate is very unsightly, especially when it is much larger than the actual subject illustrated. We note that a transposition of figures in the Chronological Table facing p. 103 predates Bruce's *Travels in Abyssinia* by nearly 100 years. The book also contains accounts of the botanical sources of Coffee-substitutes and adulterants and their detection, a list of Caffeine yielding plants, and two appendices, one a philological treatise of the names applied to coffee, the other a very interesting chapter on the history of coffee houses. J. H.

The Romance of the Fungus World.*—This is a useful and attractive addition to mycological books of a popular nature. The authors have wisely confined themselves to brief outlines as to the morphology and physiology of fungi, and the greater part of the book is occupied by a very full account of fungi in their relations to man, these relations being taken in the widest sense. The earlier chapters include a great many interesting extracts culled from mythology, folk-lore and fiction, while quite two-thirds of the book consists of a general discussion of fungi, beneficial or otherwise, in connection with agriculture, industry, medicine, and as food. In the two chapters dealing with the structure and mode of life of fungi, exception may be taken to the somewhat sweeping nature of some of the statements made, but this fault is perhaps inevitable in such a condensed account.

One queer error has crept in on p. 151, where the authors appear to believe that the ' bloom ' of ripe grapes is due to the yeast cells carried on the surface. So at least the sentence reads. On the whole, however, the book is full of useful and accurate information, and is at the same time more readable than many books of the kind. Its value is enhanced by the numerous fine illustrations, chiefly from photographs. E. M. W.

Pecan Growing.†—The increasing importance of the Pecan nut industry in the S.E. United States, and the difficulty in obtaining reliable information upon the subject in a concise form, decided the authors, Messrs. H. P. Stuckey and Edwin Jackson Kyle, to

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* The Romance of the Fungus World, by R. T. and F. W. Rolfe. Chapman & Hall, Ltd., London, 1925, pp. xx, 309, plates 31, figs. 33. Price 12s. 6d.

† Pecan Growing, by H. P. Stuckey and Edwin Jackson Kyle. Macmillan Company, London and New York, 1925, pp. xiii, 233, plates 12, figs. 33. Price 12s. 6d.

endeavour to fill the void by combining information gained from their extensive field observations with other pertinent matter. The result is a very interesting and informative book that has been published as a unit of the American 'Rural Science Series,' under the editorship of Mr. L. H. Bailey. Although a nutritive and delicately-flavoured nut, the pecan nut is little known in England. Small consignments sometimes arrive, and the nuts are occasionally seen in high-class fruiterers' shops as elliptical, thin-shelled nuts resembling small, rather smooth-shelled walnuts. In the United States, however, the nuts are of considerable importance, the annual requirements running into several millions of pounds. The tree bearing this nut is known under a variety of names, those most often met with being *Hicoria Pecan* Britton and *Carya olivaeformis* Nuttall. The first of the two is used in the work under notice. The species is widely distributed throughout most of the valley of the Mississippi and extends west along many of the rivers in Texas and Oklahoma, occurring over a considerable area in northern and central Mexico. It is also widely cultivated, particularly in Florida, Georgia and Alabama. The wild tree is very variable in character and the nuts differ a good deal in size and thickness of shell. There are forms with large thin-shelled nuts, and these are the ones sought after for cultivation. Some varieties take 100 days longer to mature than others. They cannot be raised true from seeds, and must be propagated by grafting or budding upon stocks raised from seeds. Propagation by grafting and budding offers considerable difficulties, but the authors go fully into detail upon these matters. They also give full cultural directions, methods of marketing, historical notes, descriptions of diseases and their treatment, and notes on the utilization of the nuts. The species does not give good results in England and we cannot hope to cultivate the tree commercially here, but the excellent qualities of the nuts suggest that they are worthy of more attention from importers. W. D.

Florae Siamensis Enumeratio.*—In a country like Siam, for which no special Flora has been published and where a knowledge of the plants is being so rapidly expanded, such a work as the present is invaluable. The recent increase in the knowledge of the flora of Siam is especially due to Professor Craib himself and Dr. A. F. G. Kerr. The first part, which embraces the Bentham and Hooker families from Ranunculaceae to Elaeocarpaceae (Tiliaceae), enumerates 622 species as against 103 for the same families in F. N. Williams' list published in 1905. The present work is an enumeration only with full references to the original descriptions. The author is to be congratulated on this work, which has been admirably produced. C. E. C. F.

* A List of Plants known from Siam with Records of their Occurrence, by W. G. Craib. Published for the Siam Society by the Bangkok Times Press. Luzac & Co., London, 1925, pp. 198, map. Part I. Price 12s. 10d.

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